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TREATMENT OF ACUTE INFECTIONS OF THE JOINT BY LAVAGE AND DIRECT MEDICATION

JOHN W. CHURCHMAN, M.D.

Professor of Surgery, Yale University School of Medicine

NEW HAVEN, CONN.

Since the publication of a paper[1] in 1915 in which a new method for the treatment of acute infections of joints, particularly of the knee joint, was described, I have been interested in the further development of the apparatus devised for this purpose and in the collection of further clinical data as to the efficiency of the method. The rather crude machine described in my first article answered the purpose well, but there were a number of mechanical defects in it, and these made it somewhat awkward. These defects have been entirely overcome, and an apparatus that is simple and efficient has now been devised, so that the problem of thorough irrigation and cleansing of a joint cavity is solved.

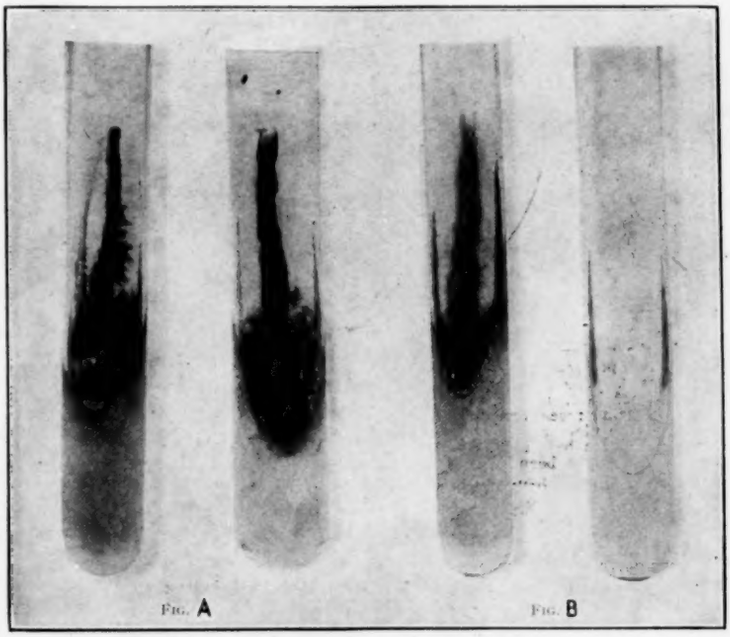


Fig. 1.—Effect of staining organisms with gentian violet: Gram-negative organisms are unaffected, gram-positive organisms are killed. *A*, tube on left inoculated with Bacillus prodigiosus (gram-negative) for control; tube on right with B. prodigiosus that had been stained one hour with gentian violet. The growth of the stained organisms has been unaffected by the dye. *B*, same experiment with B. subtilis (gram-positive). Tube on left inoculated with B. subtilis for control; tube on right with B. subtilis that had been stained for one hour with gentian violet. The growth of B. subtilis has been stained for one hour with gentian violet. The growth of B. subtilis has been completely inhibited by the dye.

As I stated in my former article, any attempt to apply an antiseptic to the lining membrane of a joint, with the hope that this substance would reach and penetrate cells of that lining, is sure to be unsuccessful unless a prelminary cleansing has been effectively carried out. My attention was called to this fact by my complete failure to stain the mucosa of the pharynx by painting it with gentian violet, because the secretions of the mucous glands of the pharynx covered the surface with a thin slimy layer, which was renewed by fresh secretions as rapidly as it was removed, and which prevented intimate contact between dye and mucous membrane as effectually as a layer of grease would have done. It seemed to me likely that the pus, fibrin and mucus accumulating on the surface of a synovial membrane must certainly interfere in a similar, and equally decisive, fashion with any attempts to apply to its surface a diffusible antiseptic.

The apparatus described herein is the result of attempts to devise some method by which an infected joint can be first mechanically cleansed with complete thoroughness, so that diffusible antiseptics applied to the joint may then come actually into contact with the cells of the synovial membrane. Repeated trials of the apparatus to be described have proved that a mechanical cleansing of this sort may be done with great readiness under local anesthesia. I wish to consider also the attempts to make clinical use in infected joints of the observations as to the bactericidal value of gentian violet, to which attention was first called[2] in 1912, and to the study of which several other papers during that and subsequent years were devoted. It is hardly necessary to repeat in detail what those findings were, for in the first paper[1] I summarized them. Suffice it here to say that a selective bactericidal property was found to be possessed by gentian violet; that this selective property ran roughly parallel with the gram reaction; that the property was exhibited by the dye either when the dye was applied directly to the bodies of the organisms or when it was applied to the medium in which they were grown (Figs. 1, 2 and 3); that it was manifested in extremely weak solutions, and that

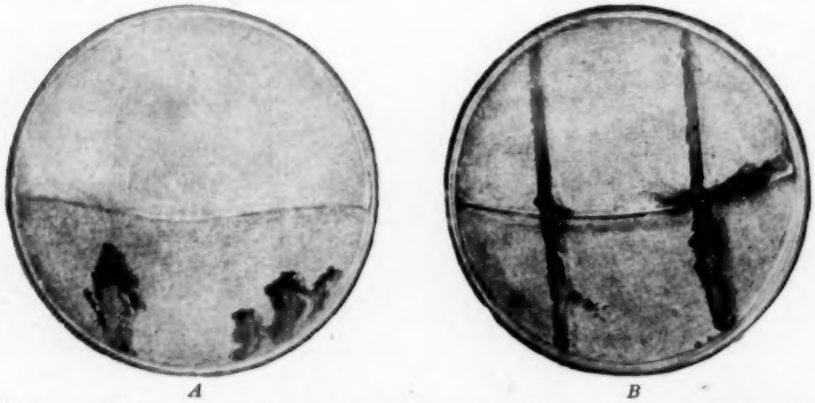
1. Churchman, J. W.: The Treatment of Joint Infections by Lavage and Direct Medication, Ann. Surg., 1915, **62**, 409.

2. Churchman, J. W.: The Selective Bactericidal Action of Gentian Violet, Jour. Exper. Med., 1912, **16**, 221.

it was shown to be a vital phenomenon, since living cells stained with the dye continued to grow.

In addition to these studies on gentian violet itself, subsequent studies also were reported on a similar action possessed by stains closely allied to gentian violet, and it was shown in these that the selective property was common to a number of stains closely related in chemical structure. Experiments were reported as having proved that the dye possessed a relatively low degree of toxicity, and it was also shown that the dye possessed the power of staining living cells. This was proved, first, by cultural experiments, in which a small amount of gentian violet was added to the medium in which epithelial tissue was growing; it was shown that the cells picked up the dye (both their bodies and nuclei being stained with it) and that, in spite of this fact, cell division continued. That the dye possessed the power of staining living cells was also shown by a number of experiments on animals in which the bladder of the living animal was filled with the dye; on removal of the organ, the mucosa was shown to be stained throughout its depth.

I wish to report the application of the apparatus thus devised, and the knowledge as to the bactericidal property of a dye capable of staining living cells without doing them any apparent damage, to the treatment of suppurative infections of the joint; for it seemed to me that joint infections of this kind presented the best point of attack in making practical application of the bactericidal observations which I have published. The studies have thus far been confined to the knee joint, first because this is the joint most easily aspirated and irrigated, and second, because, though a sharp lookout has been kept for suitable cases, the fairly active service of the New Haven Hospital has provided me no suitable infections in other joints. I have, indeed, been surprised to find that suppurative infections of the knee are much less common than I had supposed.



A *B*

Fig. 2.—Effect of gentian violet in the mediums on which organisms are grown: Gram-positive organisms will not grow in the presence of the dye; gram-negative organisms grow as well in gentian violet as in plain agar. The lower half of the Petri dish in these two illustrations contains plain agar; the upper half, agar to which gentian violet (1: 100,000) has been added. *A*, an emulsion of Sarcina rosea (gram-positive) has been streaked across the plate. The organism grows well in the plain agar, but does not grow at all in the gentian violet agar, growth ceasing some distance before the dividing line is reached. *B*, an emulsion of B. prodigiosus (gram-negative) has been streaked across the plate. Growth of the organism occurs in the plain agar and on the gentian violet agar with equal profusion.

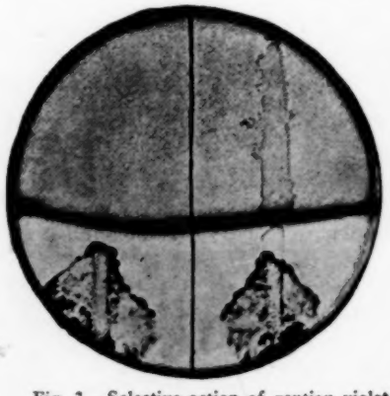


Fig. 3.—Selective action of gentian violet on a mixture of gram-positive and gram-negative organisms: A divided plate, the upper half containing gentian violet agar and the lower half plain agar. The left half of the plate has been stroked with a mixture of Bacillus subtilis and Micrococcus aureus, both gram-positive; the luxuriant growth in the plain agar ceases some distance from the dividing line, and there is no growth whatever in the gentian violet agar. The right half of the plate has been stroked with the same mixture plus B. typhosus (gram-negative). At the point where the growth of B. subtilis and M. aureus ceases, a pure culture of B. typhosus is seen crossing the line and growing well in the gentian violet agar.

APPARATUS AND METHOD

The apparatus (Figs. 4, 5 and 6) consists essentially of a series of interconnecting chambers leading ultimately to a single tube, *F*, which is attached to an aspirating needle for insertion into the joint. The apparatus is connected also with another single tube, *G*, leading from a to-and-fro pump. By means of properly arranged valves and stopcocks it is possible to blow or suck fluid into or out of the joint and also from or into any one of the connecting chambers of the apparatus. The system is an entirely closed one, and there is therefore no danger of contamination of the joint from without; the air from the pump passes through a sterilized cotton filter. The essential parts of the apparatus may be readily seen in the illustrations.

The whole apparatus will fit into an ordinary autoclave, and may be sterilized with the chambers containing the fluids to be used; Chamber *I* contains gentian violet; Chamber *E*, salt solution; and Chamber *D*, 2 per cent. procain (novocain). These fluids are introduced by the removal of Cap *K* and the turning of Stopcock *L* into the proper position. The irrigation and treatment of the knee are done under local anesthesia; it is a simple procedure and practically painless. The skin is anesthetized, either at the inner or outer surface of the joint, and the trocar inserted into the joint. It is quite essential that a trocar as large as the one illustrated be used (Fig. 7), for large quantities of fluid must have thorough access to the joint, and one must also be able to suck out of the joint bits of mucus and fibrin that may be there. In my first cases I was rather fearful that the use of such a large trocar might lead to the formation of a permanent sinus; but there seems to be no danger whatever of this, as the puncture hole closes almost immediately.

After the needle is inserted, Stopcock *A* is turned into proper position, suction applied, and the contents of the knee joint run into Chamber *B*. By the turning of Stopcock *A* and application of pressure through the pump, this fluid is then forced through Tube *C* into a flask, to be preserved for study. Stopcock *A* is then put in the proper position, pressure applied by the pump, and the procain is driven from Chamber *D* through Tube *F*, into the knee, in sufficient quantity to distend it. This is left in the knee for a few moments and again withdrawn (by the turning of

Stopcock *A*) into Chamber *B*. Salt solution is now allowed to run from the containing Chamber *E* into Chamber *D* by turning Stopcock *J;* and then, by turning Stopcock *A* into the proper position and applying pressure on the pump, the salt solution is forced into the joint to complete distention. It is then sucked out into Chamber *B*. This is repeated until the salt solution returns clear. Chamber *D* is then filled with hydrogen peroxid by turning Stopcock *A* and applying suction, which draws the fluid from a stock bottle through Tube *H* into Chamber *D*. This peroxid is then forced into the joint just as the salt had been, and is again withdrawn. The joint is then washed out again with salt solution. After this process has been repeated, the fluid will return perfectly clear, and one may feel sure that the knee joint is now clean of pus, mucus and fibrin. Gentian violet, 1:1,000, is now allowed to pass into Chamber *D* from retaining Chamber *I* by turning Stopcock *J;* and is then forced into the joint, as the saline and hydrogen peroxid have been, to the point of distention. This dye is left in the joint for five minutes, at the end of which time one can feel reasonably certain that the synovial membrane has been thoroughly stained. It may then be withdrawn and a small amount of weaker dye, 1:10,000, introduced.

If the results within the knee are at all parallel to the results obtained in the bacteriologic laboratory, one is justified in assuming that after the mucus, fibrin and pus have been got rid of by mechanical cleansing, the stronger solution of gentian violet kills organisms lying loose within the joint, on the surface of the synovia, or in its depths; and that if certain organisms do escape this dye, their development must be retarded by the presence of a weaker solution of the dye in the medium in which they are growing. This is the reason why strong dye is first used to stain the synovia, and a smaller amount of weaker dye left in the joint. After the dye has been introduced in this manner, the needle is withdrawn, a small piece of dry gauze placed over the puncture hole, and a pressure bandage of flannel applied. If there are indications that another irrigation and staining are necessary, the process can be repeated very readily at the end of a few days.

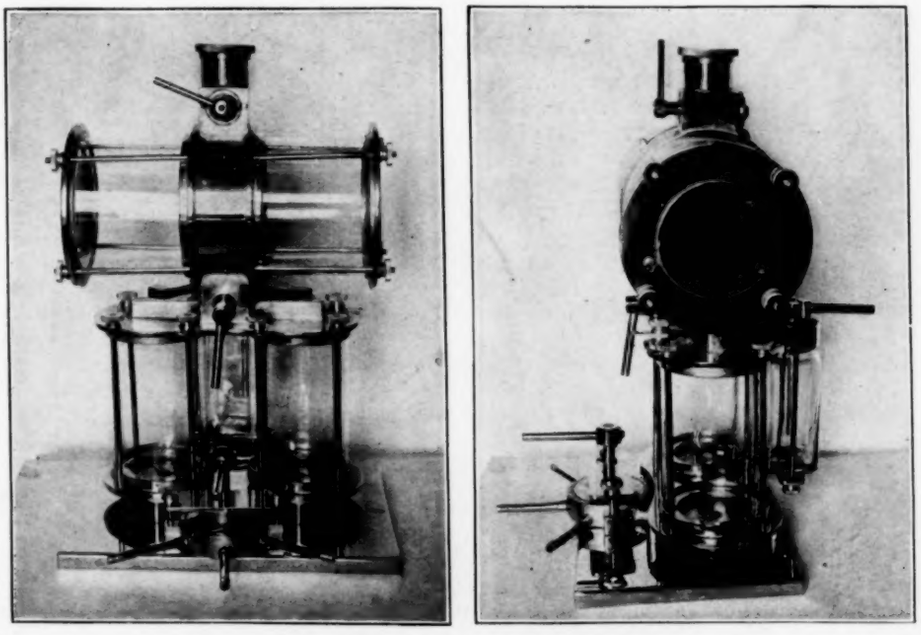


Fig. 4.—Front and side views of apparatus for irrigation and lavage.

RESULTS OF TREATMENT

By the method just described, a series of infections of the joints, all of them infections of the knee, have been treated in the New Haven Hospital. The number of cases in this series is not large, but certain of them offered such excellent opportunity for the study of the effect of the method of lavage and staining that they may be regarded as crucial experiments. The first point that struck me in these cases was the ease with which a joint could be not only washed out but also distended with no pain, or at most, a very slight amount. This was contrary to my expectations, as the pain of joint effusions is usually thought of as associated with distention and based on it; but there is no question at all that a joint can be distended to its utmost capacity with very slight pain, and if a simple local anesthetic is used there is no pain. The studies have also proved, what my experimental work had led me to expect, that gentian violet can be used in strong solutions applied to the surface of synovial membranes without the slightest damage. I had not been prepared to find that there would be no symptoms of irritation whatever, but this is in fact the case.

The series of cases treated contains eight infections of the knee, two of them pyogenic, five gonorrheal, and one of unknown character, probably tuberculous. It is Cases 7 and 8 to which I wish to call special attention, for the first six were done during the time when the apparatus for irrigation was being developed, and the cases themselves were not as carefully studied as later cases. In spite of this fact there were complete cures in Case 1, in which there was a purulent effusion of the knee which was entirely cured by one or two irrigations. The same is also true of Cases 2, 3 and 4. Particularly instructive was Case 2. This patient suffered from a double gonorrheal arthritis of the knee, with the usual golden effusion, and he was completely relieved of all signs and symptoms. In Cases 7 and 8, however, the effect of the treatment was controlled not only by clinical observations but also by roentgen-ray and bacteriologic studies.

CASE 7.—A boy entered the hospital with an acute pyogenic infection of the left knee, following a slight wound of the lower leg. It was impossible to do the operation under local anesthesia, as the boy was difficult to control and became unmanageable on entering the operating room. Primary ether anesthesia was therefore given. The fluid withdrawn from the joint was thickly purulent. It contained staphylococci on smears, and a pure culture of *Staphylococcus aureus* was grown from it. The joint was irrigated with salt solution and then stained with 1:1,000 gentian violet in the manner described. A small amount of 1:10,000 gentian violet was left in the joint. Five or six days later the opera-

tion was repeated. At this time the fluid withdrawn from the knee was normally limpid synovial fluid, very slightly stained with gentian violet, and the cultures made from this fluid were negative. The washings and stainings were repeated. The clinical symptoms promptly disappeared, and the boy had a normal knee when he was discharged, except that the tissues about the knee were still slightly swollen. The motions were normal; both flexion and extension could be actively carried on to completion.

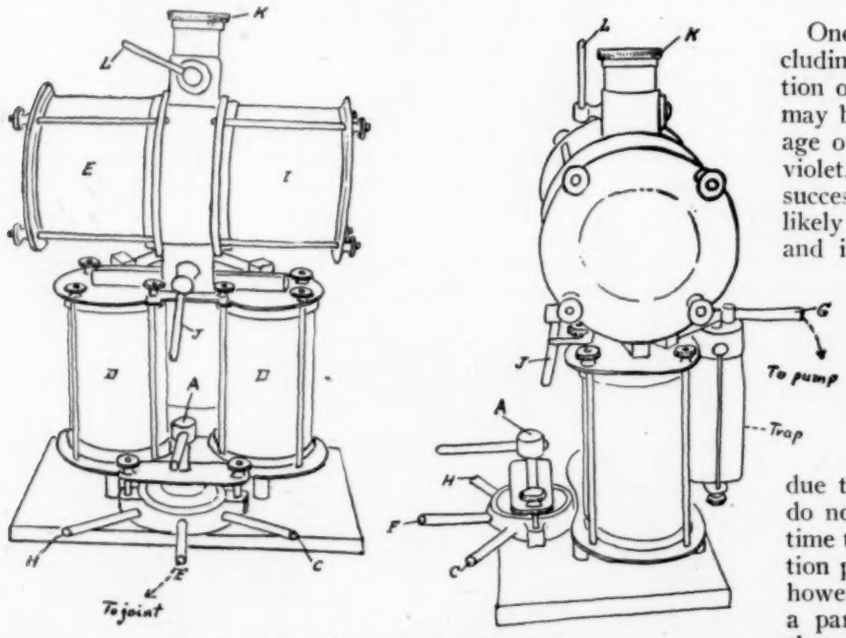


Fig. 5.—Outline of views illustrated in Figure 4.

CASE 8.—The condition was one of gonorrheal arthritis of the left knee. The clinical picture was quite typical, but the symptoms were less acute, as regards extreme tenderness, than is usually the case. The operation was done under local anesthesia. At aspiration the usual golden yellow fluid, containing fibrin clots, was withdrawn. A gram-negative diplococcus was found in the smear. These organisms could not be grown in culture. The knee was washed out with salt solution, after which it was stained with 1:1,000 gentian violet. The clinical symptoms promptly subsided, and the boy regained complete use of his knee in a short time.

In both of these cases the roentgen-ray studies showed no definite bone changes, though there was possibly some periosteal thickening in Case 7.

APPLICATION OF THE TREATMENT IN EIGHT CASES

Case and Joint	Diagnosis	Roentgen Ray Findings	Character of Effusion	Smear		Culture		Function	
				Before	After	Before	After	Before	After
1. Knee	.....	.....	Purulent	.....	.....	.....	..	Restricted	Good
2. Knee	.....	.....	Gonorrheal	.....	.....	.....	..	Restricted	Good
3. Knee (double)	.....	.....	Gonorrheal	.....	.....	.....	..	Restricted	Good
4. Knee	.....	.....	Gonorrheal	.....	.....	.....	..	Restricted	Good
5. Knee	.....	.....	Gonorrheal (old)	.....	.....	.....	..	Restricted	No improvement
6. Knee	.....	.....	Tuberculous (?)	.....	.....	.....	..	Restricted	Slight improvement
7. Left knee	Septic	Negative (slight irregularity joint surface)	Purulent	Staphylococci	Limpid synovial	Pure staphylococcus aureus	Neg.	Marked limitation	Normal
8. Left knee	Gonorrheal	Negative	Golden yellow serum with fibrin clots	Gram-Neg. diplococci	Only 1 treatment	Sterile	..	Marked limitation	Normal

COMMENT

One is justified, I think, then, in concluding that apyogenic or gonorrheal infection of the synovial membrane of the knee may be cured simply and promptly by lavage of the joint and staining with gentian violet. It is probable, of course, that the success of this treatment would be less likely the longer the process had continued, and it should hardly be necessary to say that no hope should be entertained that, if bone lesions are present, these can be influenced by the treatment. The question, of course, at once arises whether the gentian violet used played any part in the results obtained, or whether the cure of the condition was simply due to thorough cleansing of the joint. I do not think any data exist at the present time to make a positive answer to this question possible. It seems to me rather likely, however, that the gentian violet does play a part, for I have shown experimentally that gentian violet kills with great ease gram-positive organisms, and that it prevents the growth of gram-positive organisms when present in weak dilutions. It also prevents the growth of gram-negative organisms when used in strong dilutions. I have also shown experimentally that this stain, if applied to the surface of a mucous membrane, reaches its depths. It seems to me reasonable to suppose that in these cases of purulent synovitis the organisms lying on the surface or in the depths of the synovial membrane are killed by the stain used, provided the surface of the membrane has first been subjected to a thorough mechanical cleansing.

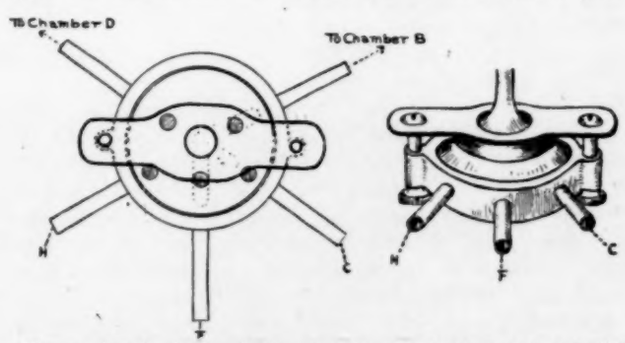


Fig. 6.—Detail of valve leading to tubes H, F and C, and controlled by Stopcock A.

It is evident that these findings open up possibilities for the treatment of other confined infections. For example, I am now working on the treatment of abscesses near the surface, which I hope to aspirate, irrigate, and stain in the same way, and it is my intention also to see if this sort of treatment cannot be applied to other cavities, particularly to the pleural cavity, and to the pelvis of the kidney.

The apparent success of the use of gentian violet in this manner has also led me to attempt to use it in a somewhat different fashion, namely, by actual injection into the tissues themselves. Here, of course, I have had to proceed with the greatest possible care, first testing out on animals and on certain individuals who offered themselves for this purpose the irritating effect of the dye when thus injected. There is no doubt that it is slightly irritating when injected directly into the tissues. The pain of this irritation can be completely overcome by dissolving the dye in 2 per cent. procain solution instead of in salt solution; but even when this is done, if the dye is used in solutions as strong as 1:1,000, there is some danger that it will lead to necrosis. I am not sure whether this necrosis is entirely due to the dye itself or to the distention, for I do not think sufficient care was used in these experiments to rule out the possibility of necrosis due to distention. The experiments went far enough, however, for us to begin the study of treatment of infections by direct injection of the dye into the tissues, and I selected for this purpose the treatment of pyorrhea alveolaris. A few severe cases of this disease have been under treatment by Dr. Gompertz of New Haven, who, under my direction, has been injecting weak solutions of gentian violet in procain directly into the gum about the pus pockets at the roots of the teeth. These studies have gone far enough to allow us to say that injections of this sort may be made without pain and with impunity. The results in these cases I have not been able to control as well as I wished, and it is too early to draw any positive conclusions. They have at least been encouraging, and in one of the cases were quite striking; for this patient, who had been suffering for a long time with pyorrhea alveolaris and had been advised by a very good dentist that the only hope for her was to have all her teeth removed, has been relieved of practically all her symptoms and still has her teeth. I think, however, that we are not justified in saying more than that this method of treating infections is promising.

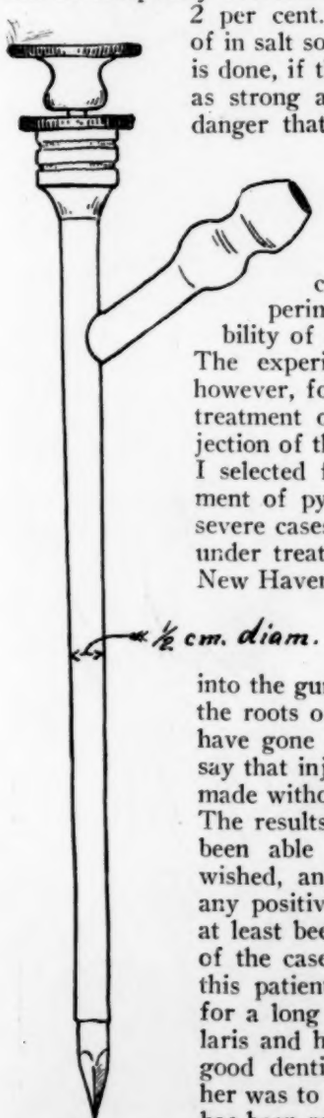


Fig. 7.—Needle used in lavage of the joint, illustrated to emphasize the need for using a needle of large caliber.

I am also studying the effect of staining, with gentian violet, skin infected with parasitic diseases, with the hope that the application of this stain to the surface and its injection under the surface may render the tissue so hostile to parasitic growth as to conquer the infection.

Slackers.—The milkman who takes the temperature of milk with his finger; the grocer who moistens his fingers to lift the tissue paper he puts over butter.—*Pub. Health*, Mich.

THE TREATMENT OF CANCER OF THE LIP BY RADIUM

A REPORT OF TWENTY-FOUR CASES

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Epithelioma of the lip offers favorable conditions for successful treatment, whether by operation or by radium, more frequently than the majority of other forms of epidermoid carcinoma. This circumstance depends, not on less malignant tendencies, but rather on the exposed position of cancer of the lip. A malignant new growth of the lip excites the concern of a patient in a far earlier stage than the same kind of growth inside the mouth. For this reason, patients having cancer of the lip with great regularity seek assistance when their growth is still small and superficial. In these stages cancer of the lip offers particularly favorable conditions for successful treatment by radium. The growth is most accessible and can be completely covered by radium. If it is justifiable to treat any form of early cancer by radium instead of by operation, it is cancer of the lip.

Fig. 1 (Case 2).—Before treatment, Feb. 21, 1917.

In the report[1] on radium therapy in cancer at the Memorial Hospital for 1915-1916, the results in the treatment of six patients with early cancer of the lip were published. In four of these patients the disease was superficial, but two had considerable submucous infiltration of the substance of the lip. One of these patients (one of the four with the more superficial cancer) has not been traced to date. When last seen his lesion had entirely disappeared, and the lip appeared normal.

The remaining five have been traced to Jan. 1, 1918. In one of them a recurrence has developed. This patient (N. N., Hospital No. 22251) was one of the two with considerable submucous infiltration of the lip. He received his single radium treatment, July 7, 1915. The recurrence developed two years later in the cervical lymphatics, and only his infirmity (he is now 77 years old), rendering him unable for the past few months to leave his home, has been responsible for the failure to remove these glands. He still has no local recurrence, and had it been possible to dissect out the glands in the neck at an early period, it is possible that he would still be free from disease.

Fig. 2 (Case 2).—After treatment, Feb. 18, 1918.

The remaining four patients are still free from disease. These patients were first treated as follows:

1. Janeway, H. H.: Radium Therapy in Cancer at the Memorial Hospital, New York (First Report: 1915-1916), New York, Paul B. Hoeber, 1917; The Action of Radium on Cancer, Surg., Gynec. and Obst., 1918, **26**, 233.

G. MacK., Nov. 15, 1915; R. O'C., Jan. 27, 1916; F. L. (Hospital No. 22980), March 14, 1916, and C. C. (Hospital No. 23827), Oct. 20, 1916. The full description of lesions and the histories of these patients, with the dosage they received, will be found in the report referred to.

During the past year we have treated eighteen additional cases of epithelioma of the lip with radium. The immediate result has been as favorable as in the first series of cases reported. As we are attempting

Fig. 3 (Case 5).—Before treatment, May 31, 1917.

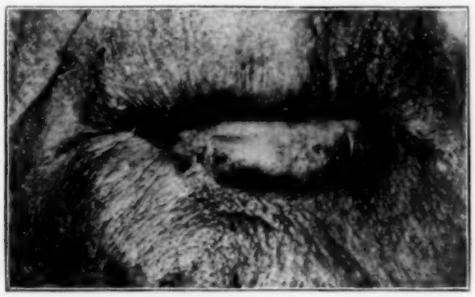

Fig. 4 (Case 5).—After treatment, Sept. 20, 1917; no induration remaining.

to do in the six cases of the previous report, we hope to publish the end-result of all cases later. A microscopic confirmation of the diagnosis was obtained in only a few of the patients in whom it could be made without serious inconvenience to them. The macroscopic appearance of all these lesions was typical, and the diagnosis in each case was confirmed by several observers at the weekly consultation of the attending staff of the hospital. We considered it unjust to subject these patients to the trauma of a removal of a piece of tissue for section purposes merely to meet the criticism of the incredulous.

The microscopic determination of the degree of invasion of the substance of the lip, as Bloodgood has shown, is not of much importance from the standpoint of the ultimate course of the lesion, as all the cases of

Fig. 5 (Case 6).—Before treatment, June 15, 1917.

Fig. 6 (Case 6).—After treatment, Feb. 11, 1918.

well established cancer have passed through an early stage indistinguishable from the superficial lesions.

Of the twenty-four cases in this report, eight were judged to be superficial early cancerous lesions, without deep invasion of the muscle. Sixteen were well established cancer, with unquestioned deep invasion of the tissues of the lip. As might be expected, there were no therapeutic failures among the eight superficial lesions.

Of the whole series of twenty-four cases, twenty-three patients were men, only one being a woman. All but one were carcinomas of the lower lip. The single case of cancer of the upper lip was in a man.

The average age was 54. The youngest (Patient 11) was 38. The oldest was the woman (Patient 15), aged 84, the next oldest (Patient 1) being 78 years of age. The most frequent etiologic factor seemed to be tobacco, all patients except the woman admitting the use of tobacco in generous amounts.

In only one patient was syphilis admitted. In two patients (22251 and 24492 [Patient 6]), direct trauma seemed to be a factor. In one of these the trauma was caused by the chronic irritation produced by the ragged edge of a decayed tooth. In the other patient the injury to the lip was produced by an oyster shell during eating.

DURATION OF LESION BEFORE TREATMENT

Number of patients	Duration Before Our Treatment
3 (1 early cancerous)	From 1 to 3 months
5 (1 early cancerous)	From 3 to 5 months
2	From 6 to 12 months
7 (1 early cancerous)	From 1 to 2 years
3 (all early cancerous)	From 2 to 3 years
2 (both early cancerous)	4 years
1	8 years
1	12 years
24 (8 early cancerous)	

The duration of the lesion before the patients came to us for treatment is of much interest. This period averaged thirty months, the shortest time being one month, and the longest twelve years. The cases may be classified, with regard to duration, as in the accompanying tabulation.

The duration of the disease before treatment, apart from the character of the growth, has little bearing on the prognosis. Two of the eight early cancerous lesions were stated to have begun to develop four years before treatment, and some of the most malignant had a short period of growth before treatment. The rapidity of growth and size of the lesion are the

all important factors determining the malignancy and affecting the prognosis. A long pretreatment history does not necessarily indicate a benign lesion. The critical factor is the rate at which the lesion is growing at the time of treatment. Many lesions that are stated to have begun months or years before suddenly start to grow rapidly a short time before the patients come for treatment. In fact, it is usually the increased activity of the lesion that alarms the patient. Such increased activity on the part of the growth probably marks the transition between the localized cancerous stage and the true infiltrating cancer.

It is of much importance to recognize what constitutes a beginning or early cancerous lesion of the lip, and that such lesions uncured have all the potential life-destroying power of established cancer. This stage is the most favorable time in which to treat cancer. No more important progress in the therapeutics of cancer could be made than so improving both diagnostic methods and the education of the public that a larger and larger proportion of patients can be treated in the early stage. It is a stage easily recognized on the skin and lip, less easily inside the mouth, where the surfaces are moist and more hidden, and almost impossible of detection in many other locations. It nevertheless should be the aim of medical science to accomplish the treatment of cancer in this early stage.

It is the stage above all others in which radium can be counted on to be successful, a remedy toward which patients will not hesitate to turn, as they so often avoid the knife.

When it has once been definitely established, it is only under the rarest circumstances that the removal of some chronic source of irritation will cure a beginning cancerous lesion. Such removal of chronic sources of irritation may be successful in the incipience of the growth, and in any case should always be insisted on as an important contributory factor to whatever therapeutic measure is employed.

In the stage of which we are speaking, as is also often the case in well established or even advanced cancer, a single treatment in experienced hands will produce a cure. In fact, in our cases the best results have followed single treatments.

With the exception of three cases (4, 13 and 14) now under treatment, in all of which the patients are at present doing well, although the ultimate prognosis is doubtful because all three patients had advanced lesions when they applied for treatment, and Case 1, in which the patient had developed multiple glandular metastases at the time treatment was begun, and another patient with a very extensive local disease involving the whole of one cheek (Patient 10), all patients have been healed, and are now free from evidences of their disease.

Although the real value of these results will not be settled until a number of years hence, yet if radium is found to be a reliable therapeutic agent in cancer of the lip, it possesses obvious advantages over excision in the treatment of early and therefore superficial cancer. One of the most important of these is the fact that it attacks the disease from the surface, and therefore in the direction of its shortest diameter. It saves

Fig. 7 (Case 12).—Before treatment, Oct. 2, 1917.

Fig. 8 (Case 12).—After treatment, Feb. 18, 1918; ulceration practically healed; all induration absent.

Fig. 9 (Case 13).—Before treatment, Oct. 11, 1917.

Fig. 10 (Case 13).—After treatment, Feb. 18, 1918.

the patient the unnecessary sacrifice of large amounts of healthy tissue, at the same time not incurring the danger that comes from an excision by a division of the tissues too near to the margin of the disease.

A number of our cases (as 8 and 2) well illustrate the tendency for early cancer of the mucous membranes to spread for some distance on the surface, often far beyond the usual place of excision. Such extensions, although still remaining quite superficial, may have healthy bridges of mucosa between them and the primary starting place of the disease.

We regard the lymphatic extension as embolic, and believe that the cervical lymph nodes perform for a time a conservative function. Obviously enlarged nodes should be removed by clean dissections, after the primary disease has been treated, but if possible not before definite retrogression has been obtained by radium treatment. The early dissection of the triangles of the neck, involving as it often does the sacrifice of normal lymphatic glands, may actually be harmful by removing Nature's barriers and cutting across lymphatic trunks which, if left unsealed, may now drain fresh cancerous emboli into the closed wounds of the neck. In our experience many an unnecessary operation has been saved by delaying the operation on the regional lymphatics until there were definite indications for performing it. No harm has resulted from this delay when patients have been able to obey instructions. Possibly there is less danger of lymphatic extension when the primary disease is treated by radium than when it is excised.

Fig. 11 (Case 15).—Before treatment, Dec. 3, 1917.

Fig. 12 (Case 18).—Before treatment, Dec. 18, 1917.

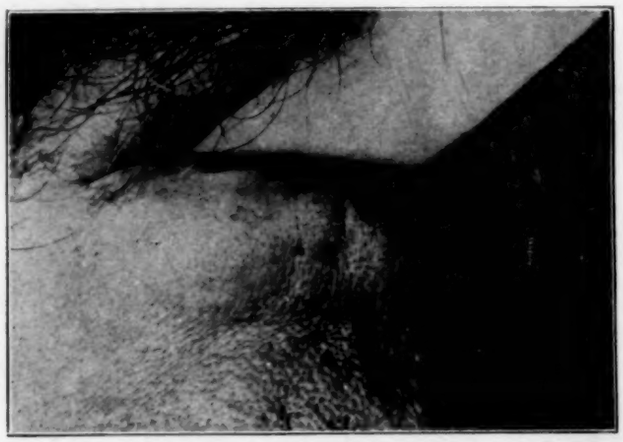

Fig. 13 (Case 18).—After treatment, Feb. 1, 1918.

When neck dissections are performed, we believe that it is an additional safeguard to place radium in the wound against the amputated stump of lymphatic channels descending from the primary lesions.

REPORT OF CASES

The following is a brief summary of the case reports of the second series of cases of epithelioma of the lip treated during the past year at the Memorial Hospital:

CASE 1 (Hospital No. 24106).—P. T., man, aged 78, married, with children, admitted, Jan. 23, 1917, had had the vermilion border of the right half of the lower lip in part destroyed by an ulcer 2.5 cm. in diameter. The base and edges were hard, and the latter rolled out. There was considerable deep infiltration of the substance of the lip. The lymph glands in both submaxillary and submental spaces were enlarged. Those in the right submaxillary space formed a tumor 5 cm. in diameter at its base. The pathologic diagnosis was epidermoid carcinoma.

The lesion on the lip had first been noticed three years before. Four months before it had first been treated and temporarily improved by an electric needle and four roentgen-ray treatments. The patient had been a heavy smoker. He denied syphilis, and did not indulge in alcohol.

Jan. 23, 1917, 300 millicuries, in twelve tubes of rubber-covered 1 mm. platinum, were applied for one hour.

March 7, not much improvement was noted.

March 12, 240 mc., in twelve tubes of rubber-covered 1 mm. platinum, were applied for two hours on the lip; 1,200 mc., in 2 mm. lead, were placed over the tumor in the neck for six and a half hours.

April 24, there was no change in the tumor of the neck; but the ulcer on the lip was much improved, although there was still much induration left.

May 13, under local anesthesia, the ulcer on the lip was excised with the actual cautery, and the lymph nodes in the submaxillary and submental spaces were removed. It was also necessary to remove a portion of the lower jaw that had been invaded by the glandular tumor of the neck. Eight tubes of rubber-covered 1.5 mm. of platinum, containing 45 mc. each, were inserted into the wound of the neck, and left in place for two hours.

July 11, the patient returned with an extensive recurrence in the deep cervical glands of the right side of the neck. An attempt to remove them completely was unsuccessful, as the capsule of the glands had been penetrated by the disease.

November 14, the ulceration had reappeared over the place where the jaw bone was resected, and a hopelessly extensive recurrence had developed in the tissues under the incision through which the glands on the right side of the neck were incompletely removed.

Jan. 16, 1918, the patient died.

CASE 2 (Hospital No. 24159).—T. K., man, aged 48, married, with two children, a motorman, admitted, Feb. 12, 1917, had an ulcer 2.5 cm. in diameter, on the right half of the vermilion border of the lower lip. In its center, the ulcer was crossed by a vertical scar. The ulcer was superficial, but the substance of the lip beneath its base was indurated to a considerable depth along the scar. There were no palpable

lymph nodes. There was a bilateral lupus erythematosus on the face and nose.

The lesion had first been noticed six months before as a pea-sized blister just to the right of the middle line. One week before a wedge-shaped piece had been removed at a dispensary for microscopic examination, and was found to be epithelioma. The patient smoked about one paper of tobacco a week in a clay pipe. He denied syphilis and indulgence in alcohol. His teeth in the neighborhood of the lip showed no jagged, decayed edges, though they had not been kept clean.

Feb. 12, 1917, 280 mc., in eight rubber-covered 1 mm. platinum tubes, were applied for one hour.

May 2, there was no evidence of disease present.

September 27, a new ulcer, with characteristically indurated base and edges, 0.75 cm. in diameter, covered with a coblike scab, had developed on the opposite (left) side of the vermilion surface of the lip. Still no enlarged lymphatics were palpable in the neck.

September 28, 63 mc., in three 0.5 mm. silver tubes, were applied over an area of 3 sq.cm., in dental compound, three hours.

October 9, the lesion treated had disappeared.

Jan. 11, 1918, there was no evidence of disease.

CASE 3 (Hospital No. 24404).—V. V., man, aged 50, married, with no children, admitted, May 14, 1917, had a superficial ulcer, 1.5 cm. in diameter, on the middle of the vermilion surface and adjacent portion of the skin surface of the upper lip. No enlarged cervical lymphatics were palpable.

The lesion had first been noticed two and one half years before, and had slowly grown to its present size. The patient had been a heavy smoker. He had had no previous treatment.

May 14, 1917, 70 mc., in one 2 mm. lead plaque, 2 cm. square, were applied for four hours.

June 29, retrogression was almost complete.

July 23, 65 mc., in five 0.5 mm. silver tubes, set in dental compound, were applied for one and one-half hours.

October 5, there was no evidence of disease.

Feb. 15, 1918, there was no evidence of disease.

CASE 4 (Hospital No. 24422).—P. R., man, aged 44, laborer, married, with children, admitted, May 21, 1917, had an ulcer 2 cm. long and 1.25 cm. wide, in the middle of the vermilion surface of the lower lip. There was slight submucous infiltration. The base and edges were characteristically indurated. The pathologic diagnosis was epidermoid carcinoma.

The lesion had first been noticed as a small nodule, two months before. The patient had been a moderate smoker, and drank only beer in moderation. The teeth had no sharp, decayed edges, although they showed the usual signs of neglect in the laboring class. Syphilis was denied, and the Wassermann reaction was negative.

Treatment:

May 21, 1917, 315 mc., in seven rubber-covered 1 mm. platinum tubes, were applied for one hour. The patient failed to return as requested for a completion of this treatment, which was incomplete, and when next seen, July 20, the old lesion had advanced, forming an ulcer 3.5 cm. long by 1.75 cm. wide, with an infiltration of the substance of the lip to a depth of 0.5 cm. The ulcer had now caused a definite defect in the lip, and a hard lymph node, 2 cm. in diameter, was palpable in the left submaxillary space.

July 24, 156 mc., in twelve 0.5 mm. silver tubes, were applied over an area of 12 sq.cm., in dental compound, for three hours.

August 4, the enlarged node in the left submaxillary space was removed, and found on microscopic examination to contain epithelioma.

September 24, the left half of the lesion had completely retrogressed; at the right extremity an indurated nodule, 1.5 cm. in diameter, was still present; 525 mc., in seven 0.5 mm. silver tubes, were applied over an area of 6 sq.cm., to the right extremity of the lesion.

October 12, a considerable retrogression had occurred in the area treated. Two enlarged lymph nodes had appeared in the submental space.

November 5, 360 mc., in six 1 mm. platinum tubes, embedded over an area 6 sq.cm., to a depth of 5 mm., in a mold of dental compound, were applied for five hours.

November 19, under local anesthesia, the submental glands were removed. Microscopic examination revealed that they were invaded by carcinoma.

Jan. 30, 1918, new enlarged lymphatics were discovered in the right submaxillary region, and the left parotid and deep cervical regions. Complete dissection of both sides of neck, with removal of all glands was performed. Retrogression in the lip was practically complete.

CASE 5 (Hospital No. 24456).—J. F., man, aged 65, married, with seven children, admitted, May 31, 1917, had an ulcer, 2.5 cm. in diameter, with hard, thick base and edges, on the right extremity of the vermilion surface of the lower lip, and involving the angle of the mouth and a small portion of the adjacent portion of the upper lip. No enlarged lymphatic glands were palpable in the neck.

Two years before the present lesion had first been noticed as a thickening of the right extremity of the lower lip. It later ulcerated and increased in size. Nine months before it was excised at Bellevue Hospital. It recurred in two months' time. The patient had smoked a corn-cob pipe all his life, used alcohol in moderation, and denied syphilis and any direct trauma to the lip. The teeth did not appear to have been a causative factor.

June 5, 1917, 336 mc., in fourteen 1 mm. platinum tubes, embedded in a mold of dental composition, were applied for five hours.

September 20, there was no evidence of disease present.

Jan. 17, 1918, there was no evidence of disease.

CASE 6 (Hospital No. 24492).—S. E., man, aged 58, married, with three children, a chauffeur, admitted, June 13, 1917, had an ulcer, 2 cm. in diameter, on the mucocutaneous juncture of the right side of the lower lip. It was slightly elevated, with irregular, nodular, indurated base and edges. There were no enlarged cervical lymphatics in the neck.

Thirteen months before, the lip had been injured at the site of the lesion during the extraction of a tooth. The ulcer so caused never healed, but gradually developed into the present lesion. One month ago an unsuccessful attempt was made to cure the ulcer by an electric needle. The patient smoked a pipe and cigars, and used alcohol in moderation. Syphilis was not demonstrated.

June 13, 1917, 210 mc., in six 0.5 mm. silver tubes, embedded to a depth of 1 mm. in a mold of dental compound, was applied for four hours.

July 27, there was no evidence of disease.

Feb. 11, 1918, there was no evidence of disease.

CASE 7 (Hospital No. 24505).—C. S., man, aged 70, married, with children, a physician, admitted, June 15, 1917, had an ulcer with characteristically indurated base and edges, on the left half of the vermilion surface of the lower lip, near the middle line. The ulcer measured 1.5 cm. in diameter, and there was definite infiltration of the substance of the lip beneath the mucosa.

The patient had first noticed the lesion as a small sore on the lower lip two years before. It had resisted all treatment, which had consisted of various local medicinal applications and fulguration. The patient was an incessant smoker, did not use alcohol, and gave no history of direct trauma or injury from the teeth. He denied syphilis.

June 15, 1917, 106 mc., in seven 0.5 mm. silver tubes, embedded 1 mm. within a mold of dental composition, were applied for two hours.

October 5, absolutely no evidence of disease was present.

December 19, there was a small indurated patch, 2 mm. in diameter, on the right end of the site of the old lesion. The patient since last being seen had continued to smoke incessantly. On this day, 250 mc., in four 0.5 mm. silver tubes, embedded 1 mm. deep in a mold of dental composition, were applied over an area of 3 sq.cm. for three-quarter hour.

Feb. 15, 1918, the reaction from the last treatment had completely disappeared. There still remained a minute thickening at the site of the patch last treated.

Case 8 (Hospital No. 24566).—H. T., man, aged 72, married, admitted, July 3, 1917, had an indurated ulcer, 0.5 cm. in diameter, on the middle of the vermilion surface of the lower lip. Between this ulcer and the left angle of the mouth was a second ulcer, 1.cm. in diameter. Its base was indurated, and surrounding it there was a definite, though small, submucous infiltration of the substance of the lip. At the left angle of the mouth there was a still larger ulcer with an indurated base and a surrounding submucous infiltration to a depth of 0.5 cm.

The lesion had first been noticed six months before. It had been treated by a course of caustic application, applied twice a week for a period. The patient had been in the habit of smoking six cigars a day, holding them on the left side of the mouth. He denied syphilis, was not addicted to alcohol, and his teeth were in fair condition.

July 3, 1917, 150 mc., in ten tubes of 0.5 mm. silver, over 4 sq.cm. of dental compound, were applied for two hours.

October 22, all ulceration was healed, and retrogression appeared to be practically complete.

December 28, no evidence of disease was present.

Case 9 (Hospital No. 24567).—J. H., man, aged 55, married, admitted July 3, 1917, had an ulcerated neoplasm on the vermilion surface of the lower lip, midway between the angle of the mouth and the middle of the lip. The base and borders were indurated, and there was a submucous infiltration of about 0.5 cm. The whole lesion measured about 1.75 cm. in both directions. The lesion was diagnosed as epithelioma.

The lesion had first been noticed as a small ulcer, resembling a coldsore, sixteen months before. It was treated with caustic application several times, and carbon dioxid snow three times. It had progressively increased to the present size. Most of the patient's teeth had been removed, and those that remained were in poor condition. He denied syphilis, and had been a heavy smoker, usually using a pipe, which he had held in the left side of the mouth. Two years before, the urine was said to contain sugar, for which condition he received treatment for a short time.

July 3, 1917, 60 mc., in four 0.5 mm. silver tubes, were applied over an area of 3 sq.cm., embedded in dental composition, for two hours.

September 21, there was no evidence of disease.

December 28, there was no evidence of disease.

Case 10 (Hospital No. 24620).—D. D., man, aged 44, admitted, July 20, 1917, had had the right third of both the upper and the lower lips and the right angle of the mouth destroyed by an ulcer, the base and edges of which were hard and covered with a smooth, sloughing surface, which was noticeably free from the nodular character usually present in epithelioma. No enlarged glands were palpable in the submaxillary space. The adjacent portion of the lower lip was much thickened, but soft. The whole lesion measured 6 cm. long and involved the cheek as far back as the second molar tooth. The pathologic report was epithelioma associated with much granulation tissue. A search for spirochetes revealed none.

A small sore developed in the right side of the lower lip nine months before. It had progressively increased to the present size. In 1908 the patient believed that he had contracted syphilis in Cuba. He was treated with mercury and iodids, and had received twelve injections of arsphenamin (salvarsan) during the last six months. Three years before, a gastro-enterostomy had been made for ulcer of the stomach, supposed to be syphilitic in origin. Since last March he had been treated at Raybrook, N. Y., for pulmonary tuberculosis. His father and mother both died from cancer. The Wassermann reaction was at present negative.

Aug. 14, 1917, 360 mc., in thirty 0.5 mm. silver tubes in dental compound, were applied over an area 50 sq.cm. for three hours.

September 21, no real improvement was noted. The inflammation in the lesion had increased.

October 8, under local anesthesia, all apparently involved tissue was removed by the cautery. This attempt was unsuccessful; a recurrence took place in the floor of the mouth and in the submaxillary lymph nodes of the opposite side. The latter were dissected out under local anesthesia, November 14, and the procedure greatly relieved the pain.

December 18, the patient died.

Necropsy revealed cancer of the floor of the mouth on the edges of the cauterized region, which were hard and covered with necrotic tissue. The tissues in the left submaxillary space were necrotic and devoid of induration. There was advanced pulmonary phthisis of the right lung, and miliary tuberculosis of the upper lobe of the left lung. No cancer was noted elsewhere in the body.

Case 11 (Hospital No. 24775).—O. H., man, aged 38, married, with two children, soldier, admitted, Sept. 19, 1917, had an ulcer 2.5 by 1.25 cm. in diameter, in the middle of the vermilion border of the lower lip. It was covered with a scab, beneath which was an elevated papillary and indurated base.

The lesion had first been noticed four months before, when it resembled a coldsore on the lower lip. It became covered with a scab, and gradually increased to the present size. It had been frozen once with carbon dioxid snow, which caused a temporary disappearance of the lesion. The patient denied syphilis, gave no history of direct trauma, and did not indulge to any extent in alcohol. His teeth were in good condition, and he smoked only in moderation.

Sept. 19, 1917, 203 mc. in seven 0.5 mm. silver tubes, were applied over an area of 7 sq.cm. in dental compound for two hours.

October 29, retrogression was complete.

November 27, the lesion was entirely healed, with the exception of a minute radium ulcer on the lingual surface of the lip.

Case 12 (Hospital No. 24823).—J. McF., man, aged 49, married, admitted, Oct. 5, 1917. On the middle of the vermilion surface of the lower lip was a flattened ulcer, 1.5 by 1 cm., with an indurated base, which formed with the submucous infiltration and thickened edges a button-like mass, at least 1 cm. thick. A short distance to the right of this ulcer was another ulcer, 5 mm. in diameter; and about 0.5 cm. to the left was a third ulcer, 0.75 cm. in diameter. Both these lateral ulcers were devoid of deep infiltration.

One year before, an ulcer had appeared in the middle of the vermilion surface of the lower lip. Five months before, another ulcer appeared on the left; and three months before, a third appeared on the right of the first lesion. No previous treatment had been given. The patient had smoked moderately, and gave no history of trauma or injury from the teeth. Eight years before, he was supposed to have had active pulmonary tuberculosis; and thirty years before, he had a chancre, followed by treatment for only one month.

Oct. 6, 1917, 162 mc., in nine 0.5 mm. silver tubes, embedded over an area of 4.5 sq.cm., 5 mm. deep in dental compound, were applied for two hours.

Jan. 21, 1918, no evidence of disease was present.

Case 13 (Hospital No. 24843).—G. S., man, aged 61, married, admitted, Oct. 12, 1917, had an ulcer, 2 cm. long, in the middle of the vermilion surface of the lower lip. Its edges and base were hard and nodular, and there was definite infiltration of the substance of the lip beneath the base and under the margins. A small pea-sized nodule of uncertain significance was palpable in each submaxillary space.

Two years before, a small ulcer had developed in the center of the lower lip. It remained fairly stationary till two months before, and since then had steadily increased in size. The patient had always smoked excessively. There had been no other trauma, and he denied syphilis.

Oct. 12, 1917, 420 mc., embedded over an area 10 sq.cm., in 0.5 mm. silver tubes, 5 mm. deep in dental composition, were applied for one and one-half hours. Following this treatment a very satisfactory retrogression resulted; December 27, however, enough thickening remained to indicate another treatment.

December 27, 133 mc., in seven 1 mm. platinum tubes, distributed over an area of 7 sq.cm., at distance of 0.5 cm., were applied for five and one-third hours.

Feb. 11, 1918, retrogression was almost complete.

CASE 14 (Hospital No. 24910).—A. F., man, aged 58, married, admitted, Nov. 2, 1917, had an ulcer, 1.25 cm. in diameter, just to the right of the middle line on the vermilion surface of the lower lip. The surrounding tissues of the lip were infiltrated to a depth of 1 cm., both around the margins and beneath the lesion.

Seven years before, a small ulcer had appeared at the site of the present lesion. It scabbed over from time to time, and increased in size. Two years before, the patient had received a series of roentgen-ray treatments, during a period of six months. These apparently healed the lesion, but about seven months before it had again ulcerated, and steadily increased in size in spite of a continuation of the roentgen-ray treatment. The patient formerly had been a heavy smoker. There was no other history of trauma or injury from the teeth. He denied syphilis.

Nov. 2, 1917, 115 mc., in three 0.5 mm. silver tubes, embedded 5 mm. deep in dental compound, were applied for one and one-half hours. A temporary improvement, noted November 16, was followed by a marked increase in the size of the lesion, noted November 30.

December 3, 832 mc., in seven 1 mm. platinum tubes, were applied over an area of 10 sq.cm., from 0.5 to 1 cm. deep in dental compound, for one and one-fourth hours. Retrogression proceeded satisfactorily until Feb. 13, 1918, when a slight increase in the thickening of the lip had developed.

Feb. 13, 1918, 202 mc., in 1 mm. platinum tubes, over an area of 28 sq.cm., 5 mm. distant, were applied for twelve hours.

CASE 15 (Hospital No. 24987).—S. D., woman, aged 84, a widow, who had had fifteen children, admitted, Nov. 30, 1917, had an elevated, nodular ulcer, 2.25 by 1.5 cm., on the vermilion surface of the left half of the lower lip, but extending to a greater distance below on the skin surface. The edges and base were indurated, but the lesion was superficial, with practically no deep infiltration of the submucous tissues. There were no enlarged cervical lymphatics.

Twelve years before, the patient had first noticed a small pimple on the left half of the lower lip. This was irritated from time to time by scratching. It ulcerated and gradually developed into the present lesion. There was no history indicating syphilis or direct trauma or chronic irritation from tobacco. The patient had been edentulous for many years.

Nov. 30, 1917, 109 mc., in five mm. silver tubes, were applied over an area of 5 sq.cm., embedded 1 mm. deep in dental compound, for three hours.

Jan. 29, 1918, no evidence of disease was present.

CASE 16 (Hospital No. 24994).—H. B., man, aged 72, married, admitted, Nov. 30, 1917, had an indurated ulcer surrounding the left angle of the mouth, which had been contracted at this end by a previous operation. The ulcer involved 2 cm. of the vermilion surface and a small part of the adjacent portion of the upper lip. Beyond the angle of the mouth the whole thickness of the cheek was infiltrated for a distance of 1 cm., and beneath the portion of the ulcer on the upper and lower lip, to a depth of 0.5 cm.

Ulceration first developed on the lower lip, eight years before. It followed an injury to the lip, produced by a clam shell during eating. Two months later the ulcer was excised. Two years later glandular metastases were excised from the neck. The present local recurrence was first noticed from six to seven months before.

Dec. 10, 1917, 921 mc., in seven 1 mm. platinum tubes, covering an area of 15 sq.cm., in dental compound, at a distance of from 0.5 to 1 cm. from the lesion, were applied for one and one-half hours.

Feb. 15, 1918, retrogression was almost complete, only a slight thickening at the angle of the mouth remaining.

CASE 17 (Hospital No. 25007).—J. K., man, aged 52, married, carpenter, admitted, Dec. 4, 1917, on the vermilion surface of the lower lip, a little to the right of the middle line, had a partly ulcerated, warty mass, 2.5 by 1 cm., formed by the apparent coalescence of three papillomatous growths. The lesion was superficial without apparent infiltration beneath the mucosa.

Three years before, a small "sore" developed on the right side of the lower lip. It would alternately crust over and bleed. In the last three months the lesion had increased rapidly in size.

Dec. 10, 1917, 266 mc., in seven 0.5 mm. silver tubes, distributed over an area of 9 sq.cm., at a depth of from 2 to 4 mm. in a mold of dental compound, were applied for three hours (88.5 per sq.cm.).

Jan. 4, 1918, no evidence of malignant tissue was present. There was a superficial, painless ulceration, caused by the radium, which was not entirely healed.

February 1, the lip had completely healed, and all induration was absent.

CASE 18 (Hospital No. 25059).—J. H., man, aged 45, married, admitted, Dec. 21, 1917, had a superficial, indurated ulcer, 1.5 by 1 cm., on the vermilion surface of the right half of the lower lip. From near the center of the ulcer there arose a hard, hornlike scab, 0.5 cm. high. The teeth showed no jagged edges, and were in a fair state of preservation, though very dirty, and surrounded with advanced pyorrhea.

Two years before, the lesion had begun as a small ulcer, which had been excised fifteen months before. It had recurred in eight weeks, and had gradually grown to the present size. The patient smoked a pipe excessively, having formerly held it in the right side of the mouth. He denied syphilis, and drank moderately.

Dec. 21, 1917, 448.2 mc., in three tubes of 0.5 mm. silver, over an area of 2.5 sq.cm. in dental compound, were applied for half an hour.

Feb. 8, 1918, no evidence of disease was present.

COMMENT

The degree of success that we have obtained in the treatment of operable cancer of the lip by radium in the series of cases reported above, and the maintenance to date with such regularity of the healed condition in the earlier cases treated, justifies a continuation of the use of radium in operable cancer of the lip. It may be that the lapse of time will require some modification of this judgment. This method of treatment includes the careful observation of the patients after treatment for the possible development of metastatic lymph nodes, and the operative removal of such when they occur, with the implantation of radium in the wound. We believe that the treatment of cancer of the lip by radium will encourage earlier attention to this disease by the patient.

We recommend the application of radium emanation embedded in molds of the dental compound, and filtered through the thinnest material for the most superficial lesions. As a matter of convenience we have used 0.5 mm. of silver uniformly for all but the lesions with deep infiltration. While 0.5 mm. of silver has been unnecessarily heavy for the most superficial lesions, it has given uniformly satisfactory results in our cases. For the deeper lesions, however, nothing has surpassed the progressive, smooth and complete retrogression produced by filtration through 1 mm. of platinum. The tubes should be sunk 5 mm. in the dental compound, and for the ordinary lesion the dose should be 60 millicurie hours per square centimeter, when the filtration is through 0.5 mm. of silver, and 100 millicurie hours per square centimeter when through 1 mm. of platinum.

The use of emanation instead of radium element facilitates uniform distribution over the lesion. Provision for uniform distribution is the most important factor in obtaining a successful result. It is true that it is possible to approach the uniform distribution obtained by emanation with the radium element, provided this is put up in many minute tubes; but few

users of radium element find it practical to divide their radium thus, and the attempt to treat these lesions by merely placing on them single tubes of radium element is inaccurate and often inadequate.

The superior adaptability of radium emanation for the treatment of cancer makes the use of the element itself obsolete, and for the vast majority of cancers it is inefficient.

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ENTRANCE CONDITIONS IN MEDICAL SCHOOLS *

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This brief paper can claim no merit as being entertaining; unfortunately it is unable to present a great deal of definite data; it is intended to present a point of view, and to elicit discussion and the necessary data from which to draw a conclusion.

Permit me to say in starting that I am in entire sympathy with the new ideal standard for medical entrance advocated by the Council on Medical Education of the American Medical Association — the two year college standard with certain required courses. Since its inception in 1905, the University of North Dakota School of Medicine has had requirements for admission somewhat higher than high school graduation. For ten years, or since 1907, it has been on the two year premedical college basis, with a course laid out for premedical students essentially the same as that outlined by the Special Committee of the Council on Medical Education, the Association of American Medical Colleges and the Association of American Universities. The chief difference between our curriculum and that of the committee is that we have always required a little more of modern foreign language and of some of the premedical sciences, and allowed less opportunity for election. While we have liked our own standard, I prefer for the general requirement the slightly more flexible outline suggested by the Special Committee, with which you are all familiar. I agree entirely that anything less than this standard of admission fails to give the student the necessary foundation; but while I am glad to see some medical colleges requiring a higher standard, and while I advise certain students every year to complete a four year college course before they begin the study of medicine, I should not like to see a higher standard than two years of college work become general.

The subject of this discussion is the discontinuing of the possibility of entrance conditions after Jan. 1, 1918. Last year you will remember that this Association voted to permit certain conditions until the beginning of 1918. The Council on Medical Education has heretofore also recognized the necessity for certain conditions, but always, perhaps, with the indication that the time would soon come when they would no longer be desirable; in its report, as published in THE JOURNAL, Aug. 18, 1917, page 547, published also as a reprint, and in the revised pamphlet, "Making the Right Start," the Council outlines the conditions that were permissible last fall, and indicates that first year medical students after Jan. 1, 1918, must be admitted only without conditions. Several medical schools have already announced a policy of admitting only those who satisfy all entrance requirements in every particular. Is it desirable to allow no entrance conditions?

In favor of the policy of no entrance conditions it may be urged that:

1. The student needs every bit of the required college work to enable him to pursue his medical studies satisfactorily.
2. Like the higher entrance requirements, it is demanded by the best interests of society.
3. If any entrance conditions are permitted at all, there would be a tendency on the part of both administrative officers and students to abuse the privilege; or schools cannot be trusted to administer conditions.
4. It would be simpler; making simpler bookkeeping, reports and records, obviating no little call for the exercise of judgment on the part of enrolling officers, and obviating possible conflicts in the student's program.

In favor of recognizing the necessity for continuing the well guarded entrance condition, I would urge that:

1. Well prepared and promising students who are slightly deficient in the requirements do present themselves for medical entrance.
2. The laws of many states and the requirements of state boards and medical schools demanding that the student attend four annual sessions of a recognized medical school will operate harshly on many good students unless some provision can be made for entrance conditions.
3. There is no sound pedagogic reason why a student of suitable age and general satisfactory preparation cannot carry part, not all, of the first year of the medical curriculum at the same time that he is finishing a small part of the required premedical work; many medical schools are now so related to a college of liberal arts that such a mixed enrolment is possible. Or if the medical school does not enjoy the relation to the college of liberal arts that makes such an enrolment possible, there is no sound reason why the selected student may not carry the first year of medicine with a condition in a small part of the required premedical work, and be permitted to remove the condition in the following summer.
4. Well conducted summer terms or quarters in many parts of the country make it possible for the student to make his standing regular by permitting him to take either the part of the first year of medical work that he failed to carry in the one instance above, or the required premedical work that has been postponed in the other.
5. There have been so many improvements in the ideals and standards of medical education, that a school that is worthy of continued existence might well be trusted to administer entrance conditions.

When I suggest this subject for discussion or for a possible paper, I had thought that should I be asked to prepare the paper, I should send out a questionnaire to ascertain the opinions of the deans of other medical schools, and attempt to get definite figures as to the number of students that would probably be involved. When the call for the paper came, however, the time seemed so short that I decided to omit the questionnaire, and to depend on the discussion at this time to supply more complete data.

REASONS FOR THE ENTRANCE CONDITIONS

To discuss briefly from my own experience the reasons that I have given for continuing the entrance condition, and incidentally to outline the way I have been accustomed to handle certain cases in the past, I might continue as follows:

1. There are many strong and promising students who present themselves with more or less irregularity

* Read at the Annual Congress on Medical Education and Licensure, Chicago, Feb. 5, 1918.

in their entrance credits. In the fall of 1917, I reported to the Council on Medical Education as first year medical matriculants eighteen students. Ten of these had survived our own premedical course in the University of North Dakota or had graduated in our own College of Liberal Arts with our medical requirements ever before them. These students were perfectly regular in every way, with total college credits varying from 64½ semester hours to 125 semester hours and the bachelor's degree; all of the ten presented all of the required work in English, modern foreign language, and the premedical sciences. The eight others were enrolled with conditions. One had the bachelor's degree and a year of graduate work from a neighboring state university, he was all right in English and the sciences, and could be given some advanced subject credit; but he lacked part of the second year of foreign language. A second had the bachelor's degree from a standard college, and had all of the required subjects excepting a year of physics. A third had 134 semester hours of college work, more than enough to receive the bachelor's degree, but he had failed to satisfy the language requirements of our College of Liberal Arts; he was all right for medical entrance except for one semester of German. A fourth presented college credits that would have admitted him to the senior year of the College of Liberal Arts, but, for unconditioned medical entrance, he lacked a second year of French. A fifth presented 70⅞ semester hours with all required work except four semester hours in biology. So far, I am sure all would agree that the cases are worthy, and that in every case conditioned entrance was permissible last fall. The remaining cases are nominally not quite so good. Without stopping to analyze them, I shall simply say that they represent promising students with by far the greater part of all of the required work accomplished who were given mixed arts medical enrolments, as I shall explain a moment later, and attention was called to their status in the report.

Whether we count it five out of fifteen or eight out of eighteen, the point is that under the rules of last fall our proportion of conditional entrances was large. Similar analyses, all based on our own two year college requirements, could be given for 1916, when four out of seventeen were lacking in a small part of the required work, and for every year the school has been in existence. I should suppose that 33⅓ per cent. would represent our average of the conditioned matriculations in the past.

What the situation is in other schools I cannot say. A recent letter from the dean of a large state university medical school shows that had the two year entrance requirement with no conditions been enforced in his institution last fall, only forty-one instead of 165 students could have been admitted, or that 75 per cent. of the present first year class in that medical school either have conditions, or would have them if the entrance requirement were two years of college work as outlined by the Special Committee.

2. With state laws, regulations of state boards, and requirements of probably all complete medical schools all calling for four years of residence and work in a lawfully established and reputable medical college, to say nothing of the fifth or intern year, I consider it an undesirable and an unnecessarily difficult handicap to place on a large proportion of promising students to deny them admission until they can enter without a condition. If there were no legal demands regarding time there would, of course, be no occasion for this discussion. It is not a sufficient answer to say that the student should have acquainted himself with medical entrance requirements and been prepared. Much of the literature of the Council on Medical Education, and the prominence given to premedical curriculums in many colleges and universities, are helping to make the situation better, and will continue to do so. In spite of all of this, however, many a good student does not come into contact with the literature and the announcements so familiar to us; many a student for one reason or another begins his college work and perhaps graduates in a college that still stresses the humanities, and in which it is difficult to secure all of the desirable courses for medical entrance no matter how alert the student may be; many a student in his early years of college work has not yet decided on his vocation, nor do I consider it either necessary or wise to expect every boy as he leaves high school and enters college to have made up his mind as to what his life work shall be; many good students change their minds even after receiving the bachelor's degree. If such a student lacks a great deal of the required work for medical entrance, he must, of course, spend a year or more in preparation; he should by all means have had the first year of chemistry and of modern foreign language and the greater part of the total requirements; but why should a student who is in general well prepared be denied admission, or required to wait a year, when a condition of from four to eight semester hours of college work in physics, biology, second year chemistry, or second year modern foreign language would enable him to begin his medical studies?

3 and 4. There is no valid pedagogic reason why certain conditions should not be permitted, and summer terms or quarters offer the student the opportunity to make his course regular. While I believe thoroughly in a proper sequence of courses, both in the arts and in the medical curriculum, and while I recognize the value of all the required premedical work as a foundation for the study of medicine, I see no reason why a strong student cannot handle gross anatomy at the same time he is studying physics or organic chemistry, or physiology while he is taking his second year of French or German; nor would the situation be materially different should he carry the first year of the medical curriculum regularly, and leave a required premedical subject in which he is deficient to be made up before the second year.

METHOD OF ENROLMENT

Since our school of medicine is closely related to the College of Liberal Arts, it has almost invariably been my practice in enrolling a so-called conditioned student to put on his card first of all the subject or subjects in which he is deficient, and then to fill out his enrolment with such part of the first year's medical curriculum as his time and schedule will permit. I enroll him, for example, in physics and gross anatomy and embryology, requiring him to omit the histology; or in second year French or German or in biology and in embryology and histology, and require him to omit the gross anatomy. I do not overload him or permit him to handle the whole first year of medicine with a premedical subject on the side, though some students might well handle such an enrolment. Sometimes, but rarely, I have enrolled such a student in the regular first year's medical curriculum and allowed him to postpone a small condition, for example, four hours of chemistry or language until the following summer. A

medical school not enjoying the close relation to the College of Liberal Arts that we do would have to handle conditions in the latter way, if at all. We do not generally do so for several reasons: 1. It is better to make up all foundational and required work as early as possible. 2. Our summer term is short, and one cannot well make up a condition amounting to eight semester hours. 3. The student is sometimes unable, or at any rate fails, to make his course regular by the beginning of the second year, and so presents obvious difficulties at that time.

The student is expected to remove the irregularity, rarely a premedical requirement with us, usually a part of the first year's medical curriculum, by work in a summer term or quarter, and in our case this usually means that he goes to some larger neighboring medical school for the summer, since the demand is not sufficient to justify us in offering summer courses in medicine. If the student does this, his work becomes regular for the second year, and if at the close of this year he satisfies all requirements, he is given the bachelor's degree in the combination course, and is certified to clinical schools as having completed two years of medicine. If he fails to make his course regular, and returns to us for the second year, he is enrolled in what he has failed to carry of the first year's curriculum, and so much of the second year's work, as his time and schedule, and the prerequisites of the courses of this year, will permit. In this case he cannot receive the degree in the combination course, and he is certified as having done only such part of the medical curriculum as he has actually completed; if he receives a degree at all it is because he satisfies the requirements of the College of Liberal Arts, and this he may or may not do. A summer quarter's work may now make him eligible for junior standing in a clinical school. The student that does not make his course regular must of necessity take more time.

SCHOLARSHIP OF CONDITIONED MEN

Our experience with conditioned students bears out the contention that they should be given an opportunity, and that they can do the work satisfactorily. In my present freshman class in gross anatomy, the strongest two students are men with conditions. In our present sophomore class the strongest man is one who has been regular from the start, but in the classes graduating in the combination arts-medical course in both 1917 and 1916, the strongest students and the winners of Phi Beta Kappa and of a prize for scholarship given by the local medical society were men who entered with conditions, and who made their work regular by attending summer terms or quarters in other schools between the first and second medical years. Going back to 1915, the strongest man had been regular from the start; but it might be noted in passing that in his first year at the university, or as an arts freshman, he did not enroll in the premedical curriculum, and that it took work in two summer terms to make his medical entrance regular, as it was, at the beginning of his third year; this fact simply illustrates that the course, or curriculum, leading to medical entrance in the briefest time is pretty straight and narrow.

I have looked over our list of students for the last five years carefully, and it is my judgment that while the honors are fairly even, the advantage figured from any point of view is slightly, but clearly, in favor of those that have entered with conditions. I should not argue from this that to have an entrance condition is a good thing in itself: I should explain the fact by saying that as a class our conditioned students have been a little older and more experienced, a little better prepared in general, though lacking in some particular, and also a little more carefully selected. An enrolling officer must use judgment in any case. We think, for example, that quality in work is quite as essential as quantity in either case, and in our catalogue we announce a plan in our effort to secure quality.

CONSISTENCY OF THE POLICY

I have discussed our way of handling conditions in the past when they were permissible by the rules of this Association and of the Council to attempt to show that they can be handled without violating the principles of pedagogy. Two years of college work and all of the specified English, modern foreign language, and premedical science are undoubtedly necessary to enable the student to pursue medicine successfully; but I see no inconsistency between this principle and a policy that would allow a promising student with 70 semester hours of college work, for example, but who is short 4 semester hours of biology, to begin his status as a medical student, and to handle a condition as I have indicated. College physics I consider absolutely necessary for both the study and the practice of medicine; but the only early medical subject for which I should suppose it ought to be considered a pedagogic prerequisite is physiology, which is usually begun in the second semester of the first year, if not in the second year; it cannot well be urged, then, that a condition might not at times be permitted in physics. Without discussing any of the other subjects in a similar way, permit me to say that it seems to me that it cannot be urged that the best interests of society demand a policy of no conditions. Society is, indeed, vitally interested in the thorough preparation of medical men; it has been a realization of the needs of society that has brought about the desirable changes in medical education; but the plan I have in mind takes nothing from the student's preparation, and allows no substitutions; only when the student satisfies all requirements is he finally passed or approved.

Whether schools can be trusted longer to administer such a policy, or whether the administrative difficulties, both for the schools and the officers of central bureaus such as that of the Council, are insuperable, I cannot say. Surely the great objection to a policy of continuing the possibility of the entrance condition must lie here. The matter seems to me so important, however, that I hope it will be given careful consideration.

I am sure I shall not be misunderstood as pleading for lower standards, or for the weak student who through failure in one or more subjects in his premedical course is unable to satisfy medical entrance in the briefest possible time. In the past, when conditions were permissible by the rules of this Association and of the Council, the University of North Dakota has attempted fairly to extend its usefulness as I have indicated. It has seemed to me that a school of medicine favorably located should do this. Should the Special Committee or any similar body representing the best judgment in medical education not see fit to reestablish the policy, we shall cheerfully acquiesce.

As indicated earlier in the paper, I have been unable to present definite data from the experience of other schools. It is to be hoped that the discussion will bring out these data. The questions are: Is the group

of students who are on the whole well prepared but who lack in some particular sufficiently large to merit consideration? Is it fair to them, or necessary in the effort to secure and maintain proper standards, to deny them medical matriculation, or to require them to spend another year on premedical work before they are accepted? Are such students able to pursue the study of medicine successfully? Can provision be made that will at the same time be fair to them, fair to those who enter with all requirements satisfied, and operable without abuse?

HERPES ZOSTER AND CHICKENPOX

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During the month of January, 1918, at the Cook County Hospital, there were admitted three patients who had herpes zoster with a simultaneous chickenpox. This was of such unusual occurrence that the literature was consulted. Head,[1] in 1900, described a patient, a boy, who developed a herpes zoster on the fifth dorsal region which in twenty-four hours was followed by a typical chickenpox eruption. Corlett,[2] in 1905, cited four such occurrences, in adults aged, respectively, 40, 44, 48 and 70 years. Bokay,[3] in a period of time extending from 1891 to 1909, observed nine different cases of herpes zoster, of various locations, which in the members of the families exposed only to the herpes, after incubation periods of intervals varying from eight to twenty days, resulted in the production of fifteen cases of chickenpox in their respective families.

Richardson[4] reports that in a convalescent scarlet fever ward, one of the patients developed a profuse herpes zoster of lower dorsal and upper lumbar distribution. The patient was not isolated, but was nursed in the main ward. Exactly two weeks following, chickenpox broke out in the ward, three patients being affected, and all three had been in the hospital longer than three weeks, the time being thirty, thirty-two and forty days, respectively. All of these patients were isolated, and no more cases of cross infection resulted.

REPORT OF CASES

CASE 1.—A. O., man, aged 53, single, cook, admitted, Jan. 19, 1918, complained of a rash on the body, and of itching. About one week before, the patient had noticed a skin eruption at the side of his chest. This was of a "raw beef" color, and "burned" or tingled. Numerous small blisters formed on it. About three days following the onset, he noticed a series of small pimples and blisters. They were not accompanied by any subjective symptoms, and appeared over the face and trunk. The patient had had typhoid at the age of 25. Chancre and gonorrhea were admitted. He was addicted to the use of alcohol.

On the skin in the area composing the segment in the eighth to the ninth left dorsal region, terminating at the midline anteriorly and posteriorly, was an irregular patchy area of erythema, surrounded by vesicles in groups, and crusts, in an apparent stage of recrudescence. Over the face and trunk there were discrete, vesicular, pustular and crusted lesions, in various stages; there was an occasional lesion on the legs and arms. The fauces, pharynx and palate also showed a discrete distribution of vesicles and papules. The teeth were carious, and the patient had pyorrhea alveolaris. There was bilateral potential inguinal hernia. Otherwise the examination was negative.

The blood count revealed: leukocytes, 9,400; erythrocytes, 5,200,000. The Wassermann test was negative. A culture in 1 per cent. glucose broth and on Petri plates was sterile after ninety-six hours. The spinal fluid pressure was not increased. There were 6 cells per cubic millimeter. The Ross-Jones test for globulin was negative. Culture in 1 per cent. glucose broth and on blood agar plates was sterile after ninety-six hours. The urine was negative.

CASE 2.—A. G., man, aged 38, married, laborer in a biscuit factory, admitted, Jan. 31, 1918, complained of pain and swelling of the right forehead and eye, with blistering. The patient stated that six days before he had developed a severe pain in his right eye, which became swollen. Next day there was a "burning or itching" feeling in the right forehead. This continued. A crop of blisters appeared which had persisted since. Two days following the onset he noticed a small eruption of pimples on his body; no subjective symptoms preceded this. He had had gonorrhea one year before; otherwise the previous history was negative.

Over the right half of the forehead, well demarcated at the midline, extending back to the hairline and down over the eyebrow, laterally to the upper temporal region, was an area of diffuse erythema, surrounded by large, irregular blebs. The right eye showed chemosis of the lids, with a slight superficial injection of the conjunctiva. Over the body, especially the thorax and abdomen, there was a discrete sprinkling of macules, papules, vesicles and pustules, with occasional crusting, in different stages. Very few of these lesions were seen on the extremities, and none on the face. There were also found adenopathy, posterior cervical, epitrochlear and inguinal; marked pyorrhea alveolaris, and hypertrophied injected tonsils.

The blood count revealed: leukocytes, 10,200; erythrocytes, 4,800,000. The Wassermann test was negative. A culture in 1 per cent. glucose broth and on plates was sterile after ninety-six hours. The spinal fluid was clear. There were 4 cells per cubic millimeter. The Ross-Jones test for globulin was negative. A culture in 1 per cent. glucose broth and on blood agar plates was sterile after ninety-six hours. The urine was negative.

CASE 3.—T. P., man, aged 27, single, sailor, admitted, Jan. 3, 1918, complained of pain and swelling of the right eye. About two weeks before he began to have a sharp pain over the right eyebrow. This pain was not very severe. Two days before, the eye became swollen so that the patient could not open it, and at the same time numerous blisters appeared on the forehead over it. Previous illnesses were denied.

Over the right side of the forehead, extending down to the lower eyelid, and laterally, and midline to a line on a level with the external canthus of the right eye, was a sharply defined elevated reddish area, slightly edematous, covered with vesicles and blebs. The eyelids were markedly chemotic, and could not be opened; a yellowish serum exuded between the lids. The neck, chest, abdomen and back showed a sprinkling of papules and vesicles, the vesicles being clear and having a red areola. Several of the teeth were carious, but otherwise were negative. The urine was negative.

COMMENT

Etiologically, von Bärensprung,[5] in 1863, first demonstrated herpes zoster as being an acute inflammatory condition of the ganglion corresponding to the region

1. Head, Henry: Herpes Zoster, or Zona, in Allbutt: System of Medicine, New York, 1900, **8**, 630.
2. Corlett, W.: Varicella Accompanying Herpes Zoster, Jour. Cutan. Dis., 1905, **23**, 289-293.
3. Bokay, J.: Etiologic Relation between Varicella and Herpes Zoster, Orvosi hetil., 1909, Series 3, **1**, 736-738.
4. Richardson, G.: Relation between Herpes Zoster and Chicken Pox, Lancet, London, 1913, **2**, 1732.
5. Von Bärensprung: Fernere Beiträge zur Kenntniss der Zosters, Ann. d. char. Krankenh., Berlin, 1863, **11**, 96.

affected. Head and Campbell,[6] in 1900, pathologically demonstrated the presence of micro-organisms in the nerve radicles involved, and contended that herpes zoster was an acute specific disease. This was later experimentally proved by Rosenow and Oftedahl,[7] in their work on specific streptococci selection, by isolating streptococci from tonsils, pyorrheal abscesses, sputum and spinal fluid in man with herpes, and producing herpes, with corresponding ganglionic lesions, by animal inoculation with these strains of organisms.

As to chickenpox, nothing has ever been definitely determined etiologically. Tyzzer,[8] in a histopathologic study of chickenpox vesicles, found certain bodies enclosed in the nuclei and cytoplasm of the cells involved. These he considered typical of chickenpox, but he was unable to produce new lesions by their inoculation, and had to consider them as nonparasitic. Keysselitz and Mayer[9] believed that the inclusion bodies of chickenpox were analogous to cytoryctes and that they were not in themselves definitely parasites, but contained the infective virus.

Very little else has been discovered.

COLORIMETRIC DETERMINATION OF REACTION OF BACTERIOLOGIC MEDIUMS AND OTHER FLUIDS

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The colorimetric methods in common use for determining and adjusting the reaction of bacteriologic mediums and other fluids involve the use of standard solutions of known hydrogen ion concentration. A variety of such solutions has been described, and they are readily prepared by any one having a moderate chemical equipment and ability. Just now, however, many men with comparatively little chemical training are confronted with problems of this nature, and the method here described has therefore been devised to accomplish a fairly accurate determination of hydrogen ion concentration without the necessity of preparing standard solutions or of depending on those prepared by others. We are here concerned only with reactions lying between 7.0 and 8.0, and only phenolsulphonephthalein has been used as an indicator. Other indicators and other ranges of acidity will be investigated later.

In this method use is made of the principle of superimposing the two extreme colors of the indicator, as used by Clark and Lubs,[1] following Salm,[2] in determining the so-called half-transformation points of indicators. Within the range of its transition from red to yellow, we may regard the observed color of a phenolsulphonephthalein solution as composed of a definite amount of red plus a definite amount of yellow, and such a color may be exactly duplicated by superimposing the extreme red and the extreme yellow of the indicator in proper concentrations. Thus, if to one test tube we add 5 c.c. of dilute acid, and to another similar tube 5 c.c. of dilute alkali, and to each add 5 drops of phenolsulphonephthalein solution, a bright yellow will be produced in the first tube and a bright red in the other. But if we look toward the light through both tubes, a color will be observed that is half way between the yellow and the red. In fact, it will be identical with the color produced by 10 drops of the phenolsulphonephthalein solution in 5 c.c. of a standard solution having a p_H of 7.9. This is the half transformation point, and is a definite constant for this indicator. But if instead of using equal amounts of indicator in each of the two tubes we vary the partition of the 10 drops of indicator between them, then by superimposing each pair and viewing them by transmitted light, a series of colors will be produced which will cover the range of usefulness of the indicator; and once such a series is "calibrated" against solutions of known hydrogen ion concentration, it may be used as a standard series for the determination of unknown reactions.

Results obtained by such a procedure in the case of phenolsulphonephthalein, comparison being made with phosphate solutions prepared according to Sörensen,[3] are as shown in the accompanying table.

RESULTS WITH PHENOLSULPHONEPHTHALEIN

Acid Tubes Phenolsulphonephthalein Solution, Drops	Alkali Tubes Phenolsulphonephthalein Solution, Drops	p_H
9	1	6.9
8	2	7.2
7	3	7.5
6	4	7.7
5	5	7.9
4	6	8.1

OUTLINE OF METHOD

Apparatus and Chemicals Required.—1. Clean test tubes. These must be of approximately the same diameter. An equal volume of water is measured into a number of tubes, and fifteen or twenty are selected for use in which the water stands at about the same level.

2. A 5 c.c. pipet.

3. A medicine dropper drawn out to a fairly fine point.

4. A buret.

5. An indicator solution. A convenient solution (0.01 per cent.) of phenolsulphonephthalein is prepared by diluting 1 c.c. of the usual solution used for kidney function tests (1 c.c. = 6 mg.) to 60 c.c. with distilled water. No accuracy is necessary, provided the same solution is used throughout.

6. Roughly normal and twentieth normal sodium hydroxid.

7. Hydrochloric or sulphuric acid.

Preparation of Standard Color Series.—Twelve test tubes are placed in two rows of six. Into each tube of one row 5 c.c. of dilute alkali are placed. (The twentieth-normal sodium hydroxid may be used, or any solution sufficiently alkaline to bring out the maximum red color of the indicator.) Into each tube of the other row, 5 c.c. of very dilute acid are placed (One

6. Head and Campbell:: The Pathology of Herpes Zoster and Its Bearing on Sensory Localization, Brain, London, 1900, **23**, 353.
7. Rosenow, E. C., and Oftedahl, S.: The Etiology and Experimental Production of Herpes Zoster, THE JOURNAL A. M. A., June 12, 1915, p. 1968; Jour. Infect. Dis., 1916, **18**, 477.
8. Tyzzer: Histology of Skin Lesions in Varicella, Jour. Med. Research, 1906, **14**, 361.
9. Keysselitz and Mayer: Zur Aetiologie der Varicellen, Arch. f. Protistenk, Jena, 1909, **14**, 113.
1. Clark and Lubs: Jour. Bacteriol., 1917, **2**, 109, 191.
2. Salm: Ztschr. f. phys. Chem., 1906, **57**, 471.
3. Sörensen and Palitzsch: Biochem. Ztschr., 1910, **24**, 387.

drop of concentrated hydrochloric or sulphuric acid to 100 c.c. of distilled water is sufficiently strong. Strong acid is to be avoided in the case of phenolsulphonephthalein, on account of its secondary color change.) Into the six acid tubes, 9, 8, 7, 6, 5 and 4 drops, respectively, of indicator are placed. Into the six corresponding alkali tubes, 1, 2, 3, 4, 5 and 6 drops of indicator are placed. If the dropper is held vertically, the drops will be practically of a size. Each pair of tubes thus contain 10 drops of indicator between them, and the series of six pairs, when viewed by transmitted light, will correspond to p_H values of 6.9, 7.2, 7.5, 7.7, 7.9 and 8.1 (as in the table) when compared with 5 c.c. volumes of any solution containing 10 drops of the same indicator solution. In order to determine the hydrogen ion concentration of an unknown solution whose reaction lies within this range, 5 c.c. of it are placed in a test tube, 10 drops of indicator are added, and its color is compared with those of the six pairs of tubes. The use of a second tube containing distilled water to form a pair with the unknown is to be recommended, but does not appear to affect the results appreciably. The color series prepared in this manner is as accurate as that yielded by standard phosphate or other solutions when used in a similar apparatus, and can be prepared anywhere in a few minutes without the use of graduated apparatus or accurate quantitative solutions of any kind. As noted by Clark and Lubs,[1] the use of pairs of test tubes is a device which is "optically very imperfect, but it works fairly well."

TITRATION OF MEDIUMS

One c.c. of the medium to be titrated is added to 4 c.c. of distilled water in a test tube. Ten drops of indicator are added, the color is compared with the color standards if it is desired to determine the initial reaction, and titration to the desired hydrogen ion concentration with twentieth-normal sodium hydroxid is performed. Fifty times the amount used will represent the amount of normal sodium hydroxid to be added to 1 liter of medium. If in carrying out the titration sufficient sodium hydroxid solution is added so that the indicator color is appreciably diluted, the end-point tubes of the comparator should be filled to a similar volume before the final comparison is made. If desired, in comparing colors, use may be made of the block described by Hurwitz, Meyer and Ostenberg,[4] though practically it has not been found to increase the accuracy appreciably. This is a wooden block in which two pairs of adjacent holes have been drilled to receive two pairs of test tubes. The holes are connected by slits so that each pair may be viewed by transmitted light. In this procedure one pair of holes would contain the acid-alkali pair chosen for an end-point, and the other the diluted mediums and a tube of distilled water. Compensation for colored fluids can usually be accomplished according to the principle introduced by Walpole,[5] by using in one row of the color standard series 5 c.c. amounts of the fluid made acid (or alkaline).

4. Hurwitz, Meyer and Ostenberg: Bull. Johns Hopkins Hosp., 1916, **27**, 16.
5. Walpole: Biochem. Jour., 1910-1911, **5**, 207.

Morbidity.—With the full cooperation of the public we may expect that morbidity and mortality rates will decrease; for the prevention of morbid conditions due to wrong living rests with the individual, who understands.—*Health News.*

Clinical Notes, Suggestions, and New Instruments

ARTIFICIAL RESPIRATION IN ASPHYXIA NEONATORUM

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Of the classic methods of artificial respiration in asphyxia neonatorum, mouth-to-mouth insufflation has proved more efficient than the methods dependent on manipulation of the child. The manipulative methods of Prochownick (rhythmic compression of the child's chest in inverted suspension), rhythmic flexion and extension of the child's body, and Schultz' swingings are all useful in asphyxia livida, but in the more critical condition of asphyxia pallida, mouth-to-mouth insufflation or insufflation through a tracheal catheter will frequently succeed after these methods have failed.

There are, however, serious objections to mouth-to-mouth insufflation: 1. The delicate air vesicle may be ruptured. Bichat has proved the possibility of blowing air into the vessels near the heart if too much force is used. 2. There is danger of infection of the child by the operator. 3. The insufflated air has already been deprived of much of its oxygen, and is laden with carbon dioxid. 4. The air cannot be changed with sufficient rapidity to oxygenate the blood. 5. The method is laborious and cannot be kept up long by one person. 6. In asphyxia pallida this, as well as all the indirect methods of artificial respiration, is too often futile.

Instrument for artificial respiration in asphyxia neonatorum.

Some years ago I had an instrument made for artificial respiration in infants which has been very satisfactory in these cases. It consists of a syringe bulb connected by rubber tubing with an air valve in the dome of a small helmet-shaped mask, and by a Y tube with an ordinary rubber toy balloon. The latter serves as a reservoir, and, as its expansile tension is about 8 mm. of mercury, it prevents the air pressure in the child's lungs from rising above that point. It also produces a uniform, steady flow of air.

It is essential that the upper respiratory passages be clear before artificial respiration is started. In any case, therefore, in which it is probable that the placental circulation has been cut off before the head is born, as in breech presentation or prolapse of the cord, a tracheal catheter should be introduced and the trachea cleared by suction. After the mouth is cleared out with the gauze-covered finger, a thread on a needle is passed through the tongue to hold that organ well forward, but not outside of the mouth. A towel is wrapped snugly, but not tightly, about the child's abdomen to prevent air from entering the stomach. While an assistant keeps the balloon inflated by compressing the bulb, the operator holds the mask, with its long diameter transversely, over the child's mouth, including the chin, but not the nose. With the index finger of the same hand he manipulates the piston of the air valve, pressure on which allows the air to flow. With the finger and thumb of the other hand he alternately compresses and releases the nostrils through which expiration takes place. Pressing the air valve piston, at the same time compressing the nostrils to prevent escape of air, he inflates the lungs. Simultaneous release of the air valve piston (stopping the air flow) and release of the nostrils allow expiration to

take place through the nostrils. The moment the nostrils are released and the air valve is closed, the natural resiliency of the lungs and thoracic walls causes a partial collapse and the escape of a considerable portion of the air. This alternate simultaneous opening of the air valve and closing of the nostrils (inflation), and closing of the air valve and releasing of the nostrils (expiration), is kept up rhythmically and as rapidly as is consistent with rather full expansion and deflation, and as long as necessary to induce normal respiration.

The advantages of this instrument are that it gets the air into the child's lungs quickly, and with a rhythm and rapid change approaching normal respiration, and does this without danger of injury to the child; and being inexpensive (the rubber parts being readily replaceable) and occupying small space in the obstetric bag, it should be available when needed.

Military Medicine and Surgery

BÁRÁNY CHAIR TESTS AND FLYING ABILITY

A CORRELATION STUDY OF ONE HUNDRED NAVAL AVIATORS

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Since the Bárány chair has been universally used by both the Army and Navy in the selection of candidates for aviation, we thought it desirable to see if there really is any correlation between flying ability and the Bárány tests. We knew, for instance, that trapeze performers and Russian dancers have very little, if any, nystagmus after whirling, and yet their proficiency in their professions depends on their sense of balance. We knew that men who have a so-called "normal" nystagmus time before flying often lose all or a great part of it after numerous flights. It seemed to us, therefore, that for the most part the use of the chair has been taken more or less on faith after the following line of reasoning: A well defined sense of equilibrium is necessary for aviation. The Bárány chair determines the normality or abnormality of function of one's semicircular canals, which have to do with equilibrium. Therefore, by use of the chair, the sense of equilibrium of a candidate for aviation can be established. The question as to whether or not this line of reasoning is theoretically sound we are willing to leave to the otologists for argumentation. What we have interested ourselves in is in seeing whether practically the actual flying ability of an individual bears any definite relationship to what that individual does in a Bárány chair.

To this end we have studied the Bárány tests and flying records of 100 naval aviators. Unfortunately, all of these men had presumably passed a satisfactory Bárány examination on application for admission into the air service. The tests here referred to are those made at the ground school before the men had done any flying; and while, of course, we have only a few gross abnormalities recorded in this group, nevertheless there is sufficient variation between the men to make the study interesting.

Several factors were considered:

1. Learning ability: fast, average or slow.
2. Flying aptitude.
3. Temperament: cool, average, nervous, easily discouraged.
4. Judgment at critical moments.
5. Sense of balance and direction in the air.
6. Tendency on turns: too flat, overbank, irregular.
7. Judgment on landing.
8. Control: delicate or stiff.

Basing our judgment of their flying ability on these factors, we have grouped these men into three classes: (1) good; (2) average, and (3) poor. Thirty-five fall in Class 1, forty-four in Class 2 and twenty-one in Class 3. In all fairness to the aviators themselves, it should be stated, however, that twenty-one poor men out of a hundred is a trifle higher than normal, about 18 per cent. of the men ordinarily falling into the poor class.

TABLE 1.—NYSTAGMUS TIMES IN MEN OF GOOD FLYING ABILITY

Name	Right	Variation		Left	Variation	
		Above	Below		Above	Below
1. C. E. H.	25	..	1	23	..	3
2. W. K. B.	28	2	..	27	1	..
3. G. C.	21	..	5	20	..	6
4. L. J. B.	25	..	1	20	..	5
5. F. B.	26	1	..	23	..	3
6. W. H. G.	24	..	2	23	..	3
7. O. E. L.	21	..	5	19	..	7
8. J. C. N.	24	..	2	22	..	4
9. K. B. O.	22	..	4	23	..	3
10. N. N. K.	26	..	..	26	..	..
11. Z. H. P.	26	..	..	26	..	..
12. A. P.	20	..	5	19	..	6
13. E. T. Z.	26	..	..	26	..	..
14. F. W. O.	28	1	..	26	..	..
15. J. D. P.	28	2	..	26	..	..
16. H. M. S.	26	..	..	24	..	..
17. A. F. R.	27	1	..	25	..	1
18. K. L. Y.	28	2	..	28	2	..
19. A. O. P.	31	5	..	29	3	..
20. T. D. S.	20	..	6	19	..	7
21. A. D. C.	25	..	1	25	..	1
22. R. C.	27	1	..	26	..	..
23. T. D.	23	..	3	28	2	..
24. W. H. B.	25	..	1	25	..	1
25. W. W. T.	20	..	6	19	..	7
26. D. B. A.	27	1	..	25	..	1
27. R. H. M.	23	..	3	22	..	4
28. G. A. H.	26	..	..	25	..	1
29. M. E. B.	26	..	..	25	..	1
30. D. H. C.	26	..	..	25	..	1
31. H. D. F.	28	2	..	27	1	..
32. C. E. F.	26	..	..	25	..	1
33. S. H. J.	24	..	2	23	..	3
34. R. T. W.	20	..	6	18	..	8
35. H. J. B.	27	2	..	25	..	1

In all of these men the tests for past pointing were normal, and in all except one case the falling tests were normal, that case being noted below. The wide variation came in their nystagmus times, which are recorded in Tables 1, 2 and 3. Twenty-six seconds is taken as the normal, and in each case the man's variation above and variation below, both right and left, is noted.

An analysis of these figures is instructive from several different standpoints. In the first place, the average variation from the normal for the poor, average and good men, respectively, is 6.04, 5.72 and 4.65 seconds. In other words, the good fliers differ from the poor fliers in their variation from the normal nystagmus time by less than one and one-half seconds, a difference which is certainly well within the range of reasonable errors. A poor flier, there-

fore, is as likely to approach the normal, so far as nystagmus time is concerned, as a good flier.

Some one has insisted that bilateral equality of nystagmus time is important, so we have analyzed our

TABLE 2.—NYSTAGMUS TIMES IN MEN OF AVERAGE FLYING ABILITY

	Name	Right	Variation		Left	Variation	
			Above	Below		Above	Below
36.	R. T. W.	19	..	7	20	..	6
37.	N. F. W.	24	..	2	23	..	3
38.	W. J. W.	24	..	2	23	..	3
39.	P. F. W.	27	1	..	25	..	2
40.	H. H. T.	26	..	..	28	2	..
41.	R. T.	24	..	2	23	..	3
42.	F. J. R.	26	..	..	24	..	2
43.	J. E. P.	28	2	..	27	1	..
44.	W. S. P.	30	4	..	28	2	..
45.	C. H. P.	24	..	2	22	..	4
46.	S. E. P.	20	..	6	19	..	7
47.	G. C. M.	27	1	..	25	..	1
48.	G. S. M.	17	..	9	19	..	7
49.	H. B. M.	26	..	..	25	..	1
50.	W. L. L. Reversed falling—Nausea	15	..	11	13	..	13
51.	J. D. I.	25	..	1	27	1	..
52.	R. H. G.	27	1	..	26	..	..
53.	W. R. H.	24	..	2	23	..	3
54.	P. J. H.	20	..	6	24	..	2
55.	M. J. D.	26	..	..	25	..	1
56.	J. H. C.	30	4	..	28	2	..
57.	J. B. B.	34	8	..	27	1	..
58.	E. A.	29	3	..	28	2	..
59.	G. C. A.	30	4	..	30	4	..
60.	J. S. A.	26	..	..	27	1	..
61.	I. I. A.	33	7	..	29	3	..
62.	C. H. A.	25	..	1	21	..	5
63.	J. A. J.	28	2	..	28	2	..
64.	O. B.	26	..	..	26	..	..
65.	R. S. H.	23	..	3	22	..	4
66.	A. H. B.	20	..	6	20	..	6
67.	S. T. A.	20	..	6	25	..	1
68.	W. A. B.	25	..	1	23	..	3
69.	W. D.	27	1	..	25	..	1
70.	R. F. D.	22	..	4	23	..	3
71.	E. D.	24	..	2	23	..	3
72.	L. A. H.	27	1	..	26	..	..
73.	G. N. G.	28	2	..	26	..	..
74.	J. W. H.	28	3	..	25	..	1
75.	K. B. H.	30	4	..	28	2	..
76.	H. L. R.	24	..	2	25	..	1
77.	C. E. H.	22	..	4	23	..	3
78.	F. E. H.	26	..	..	30	4	..
79.	T. R. M.	23	..	3	24	..	2

figures from that standpoint, measuring the variation between right and left in each individual. We find that the individual variation in the good fliers is 1.37

TABLE 3.—NYSTAGMUS TIMES IN MEN OF POOR FLYING ABILITY

	Name	Right	Variation		Left	Variation	
			Above	Below		Above	Below
80.	W. H. M.	25	..	1	26	..	..
81.	J. H. T.	23	..	2	24	..	1
82.	A. E.	28	3	..	27	2	..
83.	H. V. M.	25	..	1	26	..	..
84.	C. M. N.	22	..	4	24	..	2
85.	H. H. T.	25	..	1	24	..	2
86.	P. H.	21	..	5	22	..	4
87.	R. C. P.	27	1	..	26	..	..
88.	H. M. H.	26	..	..	25	..	1
89.	W. F. S.	30	4	..	29	3	..
90.	J. C. McC.	25	..	1	22	..	4
91.	O. R. L.	25	..	1	18	..	8
92.	L. —	22	..	4	20	..	6
93.	C. N.	33	7	..	22	6	..
94.	L. L. S.	22	..	4	21	..	5
95.	G. W. G.	29	3	..	30	4	..
96.	W. M. H.	24	..	1	24	..	1
97.	F. H. M.	25	..	1	25	..	1
98.	M. M. W.	22	..	4	22	..	4
99.	E. F. H.	18	..	8	18	..	8
100.	J. R. G.	33	..	7	28	2	..

seconds, in the average fliers 1.81 seconds, and in the poor fliers 1.47 seconds. Certainly here we do not have even a semblance of correlation between flying ability and individual variation in nystagmus time.

If we take simply the gross average time for each of the three classes of fliers, we find 24.2 seconds for the good, 24.8 seconds for the poor, and 26 seconds for the average fliers, in which case we have a reversed correlation as regards good and poor fliers.

There seems to be an opinion prevalent among men examining candidates for aviation that variation above the normal is more desirable than variation below. In our group of cases, however, the variation of the good fliers below 26 seconds compared to the variation above in the same group is 4.62: 1, while in the case of the average and poor fliers, the ratios were 2.31: 1 and 2.02: 1, respectively.

The only case afforded by this group of 100 men in whom there was evidently a very marked abnormality of semicircular canal function was in W. L. L., No. 50. His nystagmus time was: right, 15; left, 13. He had reversed falling and was excessively nauseated. Nevertheless he has proved thus far to be a very acceptable flier, and in this classification has been put in the average class.

TABLE 4.—SUMMARY OF RESULTS

	Good Fliers (35 men)	Average Fliers (44 men)	Poor Fliers (21 men)
Average variation	4.65 seconds	5.72 seconds	6.04 seconds
Average nystagmus time	24.2 seconds	26 seconds	24.8 seconds
Individual variation between right and left	1.37 seconds	1.81 seconds	1.47 seconds
Ratio of "variation above" to "variation below"	1:4.62	1:2.31	1:2.02

The evidence, therefore, seems to point to an absence of correlation between equilibrium tests, as established in the Bárány chair, and actual flying ability.

Correlation of Laboratory and Clinical Observations.—In the third annual report of the Medical Research Committee for 1916-1917, it is noted that a special investigation committee has been appointed for the purpose of further combined study of "Shock and the Better Correlation of Laboratory and Clinical Observations," consisting of Prof. F. A. Bainbridge, Prof. W. M. Bayliss, F.R.S.; Prof. Walter B. Cannon, Dr. H. H. Dale, F.R.S. (secretary); Lieut.-Col. T. R. Elliott, F.R.S., R. A. M. C.; Capt. John Fraser, R. A. M. C.; Prof. C. S. Sherrington, F.R.S.; Prof. E. H. Starling, F.R.S. (chairman), and Col. Cuthbert Wallace, C. B. Professor Cannon is making arrangements for coordinating the work of this committee with that of a similar committee of American physiologists. The committee in its report also expresses its gratitude to the Rockefeller Institute for Medical Research, and to Dr. Simon Flexner, director of the institute, for services rendered, and especially mentions the assistance that Professor Richards, with the sanction of the University of Pennsylvania, is giving to research work in its pharmacologic department; the cooperation of Prof. Walter B. Cannon of Harvard University in inquiring into the physiology of surgical and toxic shock; the valuable service of Professor Tileston of Yale University, and other Americans in the work at Hampstead or Colchester on cases of military heart disorder, and the collaboration of American workers in France with the committee. The committee accepts gratefully these individual acts of friendly help for American workers as an earnest of the growing cooperation between this work for the advancement of medical knowledge in the two countries, on behalf of either of them, with the allied armies in France.

THE PNEUMONIAS: STREPTOCOCCUS AND PNEUMOCOCCUS GROUPS

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A conference of medical officers from Fort Sam Houston and Camp Travis was held, Jan. 3, 1918, for the purpose of considering the pneumonia situation. Various points in the determination of the causative organism in pneumonia following measles were considered, methods of procedure were suggested, and the laboratory force was organized to take up the work. A preliminary report[1] was sent to the Surgeon-General of the U. S. Army, Feb. 7, 1918. We present a part of the original report, together with additional cases and comments.

METHODS OF PROCEDURE, AND POINTS TO BE CONSIDERED

1. The presence or absence of type pneumococci and hemolytic streptococci in all cases of measles should be determined by the taking of throat swabs of all patients immediately on their entering the hospital.

2. Carriers of either organism should be segregated and given special care—especially after-care.

3. Cultures for hemolytic streptococci should be made of all patients, now in the convalescent wards, who have had pneumonia following measles.

4. Blood cultures should be made in all pneumonia cases occurring as complications of measles.

5. Cultures in blood agar should be made of all pus specimens from serous cavities for identification of pneumococci and hemolytic streptococci.

6. At necropsy, cultures in blood agar should be made of lung specimens, pleural and pericardial pus and the heart's blood.

7. All organisms isolated should be identified.

8. The presence or absence of agglutinins for organisms isolated from postmortem specimens should be determined in patients convalescing from pneumonia following measles.

9. Determination by throat swabs should be made of the percentage of measles patients who are healthy carriers of pneumococci or hemolytic streptococci—Type III hemolysis.

(*a*) What percentage of these develop pneumonia?

(*b*) What percentage of these separate groups come to necropsy?

10. Are the types isolated at necropsy the same as those isolated from throat swabs?

11. The advisability should be considered of vaccinating, by the intravenous method, all measles patients or all who are found to be healthy carriers of specific organisms with the predominating or specific types that are isolated from postmortem specimens. This refers especially to vaccination with hemolytic streptococci.

12. The hemolytic streptococcus pneumonias should be given special consideration in determining whether or not these have been classified as Group Type IV pneumonias.

13. Is there a possibility of a double infection with the type epidemic pneumonia and the streptococcus pneumococcus pneumonia?

14. What percentage of bronchopneumonias are hemolytic streptococcus pneumonias?

15. Is hemolytic streptococcus pneumonia a terminal infection in type pneumonia?

16. All hemolytic streptococci isolated from throats, serous cavity exudates, blood and postmortem specimens should be identified by specific agglutinating.

17. The types or groupings of streptococci should be determined by serologic reactions.

This preliminary report is made for the purpose of setting forth our findings, so that others may make similar investigations elsewhere.

PREVALENCE OF PNEUMOCOCCI AND HEMOLYTIC STREPTOCOCCI IN THROAT SWABS OF MEASLES PATIENTS

In pursuance of the plan to determine the presence or absence of type pneumococci and hemolytic streptococci in all cases of measles on entrance of the patients to the hospital, and to determine the percentage of measles patients who are healthy carriers of pneumococci or hemolytic streptococci, 291 swab cultures were made. Of these, 187 showed Types I and II hemolysis. Among these patients, twenty-five, or 13 per cent., developed complications as follows: otitis media, 5; bronchopneumonia, 4; tonsillitis, 4; scarlet fever, 3; lobar pneumonia, 2; mumps, 2; arthritis, 1; sinusitis, 1; acute bronchitis, 1; erysipelas, 1; cellulitis, 1; abscess of gum, 1. Among these twenty-five patients there were twenty-six complications. During the bronchopneumonia complication in the four cases referred to in this group, Type III hemolytic streptococci were isolated.

TABLE 1.—THROAT SWABS FROM MEASLES PATIENTS ON ENTERING HOSPITAL, PERCENTAGE OF COMPLICATIONS FOLLOWING MEASLES *

	No.	Per Cent.	Complications No.	Complications Per Cent.
Total swabs	291	100	..	..
Types I and II hemolysis	187	64	25	13
Type III hemolysis	88	23	36	41
Types I and III hemolysis	16	12	15	94
Total type III	104	35	51	49

* Types I, II and III refer to types of hemolysis, and not to groups of streptococci.

Of the total swab cultures, 104 showed Type III hemolysis, and among these, fifty-one, or 49 per cent., developed complications. In this group these were: bronchopneumonia, 34; empyema, 9; tonsillitis, 6; arthritis, 2; acute bronchitis, 2; mumps, 1; lobar pneumonia, 1; cellulitis, 1; pleural effusion, 1. Among the fifty-one patients there were fifty-seven complications.

It may be assumed that some of these complications (scarlet fever and mumps [?]) were merely incidental to the measles infection.

If only the pneumonia cases are considered in these two groups of throat findings, it will be noted that among those patients from whom Types I and II were isolated, 3 per cent. developed pneumonia; while among those harboring the Type III hemolytic streptococcus, 33 per cent. developed pneumonia.

The complications here referred to, aside from the pneumonias, are now under investigation in order to determine the causative organism.

From 291 throat swabs from measles patients, 35 per cent. hemolytic streptococcus carriers were revealed, and 33 per cent. of these carriers developed streptococcus pneumonia.

1. Cumming, J. G.: An Investigation to Determine the Causative Organism in Post-Measles Pneumonia Cases.

It has been established that among measles patients in this series of cases, 33 per cent. of the identified streptococcus carriers developed streptococcus pneumonia. Whether or not this percentage is applicable to measles cases among the civilian population is a question as yet not determined.

SWABS FROM AVERAGE THROATS

Seventy swabs from average throats showed only 6 per cent. hemolytic streptococci. This corresponds to the percentage obtained by Smillie in his investigation of hemolytic streptococci. How is the low percentage among these, as compared with the percentage among measles patients on entrance to the hospital, to be accounted for? Is it possible that the streptococcus in the throat prepares the way for measles virus infection, and that the latter infection, in turn, produces a condition that is favorable to streptococcus pneumonia (measles catarrh) and an extension of this infection to the pleural and pericardial cavities, blood stream, joints, etc.? Is this supposition applicable to scarlet fever and its complications?

TABLE 2.—BACTERIOLOGIC FINDINGS AT NECROPSY IN CASES OF THE PNEUMONIAS

Case	Date	Lung	Pleural Exudate	Pericardial Exudate	Heart's Blood	Diagnosis	Type Pneumonia
1	1/24/18	....	....	S*	S	Lobar pneumonia	IV
2	1/25/18	S	S	S	....	Measles pneumonia†	....
3	1/26/18	....	S	....	....	Bronchopneumonia	....
4	1/30/18	....	S	....	....	Bronchopneumonia	....
5	1/30/18	S	S	S	S	Measles pneumonia	....
6	2/ 2/18	S	S	S	S	Measles pneumonia	....
7	2/ 2/18	S	S	....	....	Measles pneumonia	....
8	2/ 2/18	S	S	....	....	Measles pneumonia	....
9	2/ 3/18	S	S	....	....	Measles pneumonia	....
10	2/ 3/18	P‡-S	P-S	....	....	Lobar pneumonia	IV
11	2/ 4/18	S	S	S	S	Lobar pneumonia	Not identified
12	2/ 4/18	P	P	P	....	Lobar pneumonia	Not identified
13	2/ 5/18	P-S	....	....	P-S	Measles pneumonia	....
14	2/ 5/18	S	S	....	....	Measles pneumonia	....
15	2/ 6/18	P	P	....	....	Lobar pneumonia	Not identified
16	2/ 7/18	S	S	S	S	Measles pneumonia	....
17	2/ 8/18	S	S	S	S	Measles pneumonia	....
18	2/ 8/18	P-S	P	P	P-S	Lobar pneumonia	....
19	2/ 8/18	....	....	....	S	Measles pneumonia	....
20	2/ 9/18	S	S	....	....	Measles pneumonia	....
21	2/10/18	II§	S	P	P	Measles pneumonia	....
22	2/10/18	P	....	P	S	Measles pneumonia	....
23	2/11/18	II	P	S	S	Bronchopneumonia	....
24	2/12/18	S	....	S	....	Bronchopneumonia	....
25	2/13/18	S	S	S	S	Measles pneumonia	....
26	2/14/18	S	S	S	S	Measles pneumonia	....
27	2/14/18	S	S	S	S	Measles pneumonia	....
28	2/13/18	P	....	S	....	Lobar pneumonia	....
29	2/18/18	S	S	S	S	Measles pneumonia	....
30	2/18/18	S	....	....	P	Bronchopneumonia	....
31	2/21/18	S	S	....	S	Bronchopneumonia	....

* S means positive for Type III hemolytic streptococci.
† "Measles pneumonia" means measles followed by pneumonia.
‡ P means positive for pneumococci.
§ II means Type II hemolysis, organism not identified.

HOSPITAL PROCEDURE FOR THE SEGREGATION OF MEASLES PATIENTS

Carriers of either organism, the streptococcus or the pneumococcus, should be segregated and given special care, especially after-care. On the basis that 35 per cent. of measles patients are streptococcus carriers and that 33 per cent. of these will probably develop pneumonia complications, and that cross infection of those not carriers is an important consideration in prevention, the wards should be divided into three sections. The first of these may be designated the detention section where all incoming patients are held, until by throat swabs they are identified as carriers or as "clean" patients. This information is obtainable in eighteen hours. The carriers may then be removed to the second or carrier section, and the clean patients segregated in the third section. It is especially important that all patients in the detention section be protected by the sheet method of separation against droplet infection.

The value of the sheet method is shown in the results of having carriers of hemolytic streptococci cough four times directly at agar plates held at a distance of about 2 feet. One hundred and thirty plates were used in this experiment, and an average of fourteen colonies developed on each. In addition, thirty-two blood agar plates were exposed in the same manner, with the result that the average number of colonies was the same as in the preceding experiment, and 12 per cent. bore colonies of hemolytic streptococci.

BACTERIOLOGIC FINDINGS IN BLOOD CULTURES OF PATIENTS WITH PNEUMONIA FOLLOWING MEASLES

Of patients with pneumonia following measles, twenty-eight blood specimens in all were tested. Of these, twenty-four were negative, while four, or 17 per cent., were positive for hemolytic streptococci; whereas in the series of necropsies reported (Table 2), it will be noted that a much larger percentage (58) of the specimens were positive.

BACTERIOLOGIC FINDINGS IN ANTEMORTEM PLEURAL EXUDATES

Of the sixty-one examinations of pleural exudates from patients in the pneumonia wards, organisms were found in forty-eight specimens. Of forty-one lobar pneumonia specimens, 59 per cent. proved to be pure streptococcus type III hemolysis, and 41 per cent. pneumococcus. Of seven bronchopneumonia specimens, 86 per cent. were streptococci, and 14 per cent. pneumococci. By consolidating these two groups, we find that 63 per cent. were hemolytic streptococci and 37 per cent. pneumococci.

BACTERIOLOGIC FINDINGS AT NECROPSY

In the thirty-one necropsies considered in Table 2, streptococci—Type III hemolysis—were isolated from twenty-one lung specimens, twenty-two pleural exudates, fourteen pericardial exudates, and fifteen heart's blood specimens.

In twenty-six, or 84 per cent., of the specimens from the serous exudates or heart's bloods, the streptococcus was isolated from pure culture, and in three, or 9.7 per cent., of the specimens it was coexistent with the pneumococcus; furthermore, it was found in one or more of these specimens in twenty-nine, or 94 per cent., of the necropsies, lobar pneumonia cases included.

The streptococcus was isolated in each of the twenty-four bronchopneumonia cases. Of these twenty-four cases, eighteen, or 75 per cent., are known to have followed measles.

Of the seven lobar pneumonia postmortem specimens, in only two was the pneumococcus unaccompanied by the hemolytic streptococcus. In two other specimens of this group, only the streptococci were found, and in the remaining three there were both pneumococci and streptococci.

In the lung specimen of Case 13, the ratio of pneumococci to streptococci was 350:2; while in the heart's blood it was 3:200.

In only one necropsy on a patient that had had pneumonia following measles was a type epidemic pneumococcus found, and this was coexistent with the hemolytic streptococcus; while in the seven lobar pneumonia cases, hemolytic streptococci were found, either in pure culture or coexistent with pneumococci, in five, or 71 per cent., of the necropsies.

It would appear that the hemolytic streptococcus was the cause of death in twenty-nine, or 94 per cent., of the thirty-one cases, lobar pneumonia cases included; and since this organism was found in fairly pure cultures in all lung specimens as well as in pure cultures, in either serous exudates or the heart's blood or both, in cases of pneumonia following measles, it may be concluded that the hemolytic streptococcus is the causative organism in this complication following measles, moreover, that it was the immediate cause of death in a large percentage of so-called lobar pneumonia cases.

Assuming that universal vaccination against the predominant type, or types, of the hemolytic streptococcus will protect against infection, it follows that if this procedure is carried out, the case rate as well as the mortality of the pneumonias, both pneumococcus and streptococcus, should be reduced by a large percentage.

BACTERIOLOGIC FINDINGS IN SWAB AND SPUTUM SPECIMENS

In the wards for patients with pneumonia following measles, swab and sputum specimens from twenty-four patients were examined for the hemolytic streptococcus. Of the swabs, 76 per cent. were positive, as were also 87 per cent. of the sputum specimens. In 55 per cent. of the cases the swabs as well as the sputum specimens were positive; while either swab or sputum was positive in 100 per cent. of the cases. These findings show the importance of taking both swab and sputum specimens.

IDENTIFICATION AND CLASSIFICATION OF THE PNEUMONIAS

On account of the unquestioned prevalence of streptococcus pneumonia, both as a complication of measles and as coexistent with lobar pneumonia, it is apparent that a new differential procedure for type identification must be devised.

In none of the lobar pneumonia cases which at necropsy showed both pneumococci and streptococci had an antemortem diagnosis of type epidemic pneumococci other than Type IV been made.

Of twenty specimens of sputum from lobar pneumonia patients submitted to the pneumococcus division for type identification, four were of Type I; four were not identified because the sputum specimens were not satisfactory (streptococcus pneumonia sputum is not always of the coffee-ground character); and twelve were not of Types I or II. All these specimens were submitted to the division of streptococcus investigators, and of the twenty specimens, nine showed Type I or II hemolysis, and the remaining eleven the hemolytic streptococcus—Type III hemolysis.

It is apparent that there is considerable confusion in checking the results of the two divisions of workers, and this is doubtless due to the fact that the streptococcus has not heretofore been recognized as a factor in the pneumonias. In this series of specimens the streptococcus was found in 55 per cent. of the cases, and as the mortality from the infection is high in the so-called "lobar pneumonia" cases, the identification of this organism in the sputum is important in determining the proper therapeutic treatment.

Failures by the mouse method are due to the virulence of the streptococcus for this animal, and to the possibility of a coexistent infection of both pneumococcus and streptococcus. If a double infection exists, either the mouse will not die, because of the small proportion of pneumococci in the sputum, or if it does die, the death may be due either to one of the type pneumococci, or to the predominance of hemolytic streptococci. From this it will be seen that the hemolytic streptococcus is not recognized by the mouse method, and that this method does not rule out hemolytic streptococci and other infecting organisms, as was formerly believed.

Although the Avery method is applicable under favorable conditions to the type pneumococcus pneumonias, it does not include in its procedure the identification of streptococcus pneumonia; and owing to the mucous cloud which is not thrown down by centrifugation, precipitin formation is at times difficult to detect.

From these facts it is apparent that the methods heretofore employed are inadequate for the diagnosis of all the pneumonias, and that an additional procedure must be added which will include the identification of the hemolytic streptococcus.

Since the pneumonias are of two main groups—pneumococcus and streptococcus—and as they may be coexistent, the isolation of the causative organism, or organisms in pure culture is essential to group as well as to type identification. The following procedure, which includes isolation of the hemolytic streptococcus type III in pure culture, is therefore presented:

The sputum is obtained and washed in the usual manner, diluted to 10 c.c. in sodium chlorid solution, and one and two loops are transferred to each of two tubes of 10 per cent. horse blood agar, which are poured into Petri dishes. This technic of isolation is the same as that used by Smith and Brown[2] and Smillie.[3] These are incubated for twenty-four hours.

The pneumococcus colonies—Type I hemolysis—may be easily differentiated by their small greenish halo of hemolysis from the streptococcus colonies, which are lance shaped and have a clear halo of hemolysis from 2 to 3 mm. in diameter, after an incubation of eighteen hours. Type 1 refers to the familiar *Streptococcus viridans* hemolysis; II and III to the alpha and beta types of hemolysis, respectively, of Smith and Brown. The medium should be almost on the border of being liquid, so as to permit of rapid growth and diffusion of hemolyzing products.

The next step in the procedure consists in picking four pneumococcus-like colonies and several streptococcus colonies and their transfer to slide ascitic fluid or serum agar smears. These agar smears are prepared by first placing a couple of layers of filter paper in the bottom of a large Petri dish, and on these a row of slides numbered with a diamond point. The Petri dish and its contents are then sterilized, after which the agar smears are prepared in the same manner as an ordinary blood smear. The picked colonies are transferred to these smears; the filter paper is then moistened to prevent the drying of the smears, and the Petri dish with its contents is incubated for from six to eight hours. The cultures so obtained on the slide agar smears are worked up into a

2. Smith and Brown: Jour. Med. Research, 1914, **31**, 455.
3. Smillie: Jour. Infect. Dis., 1917, **20**, 45.

homogeneous suspension with a platinum loop in the proper dilutions of pneumococcus Type I serum and streptococcus antiserum. These are of course controlled with dilutions of normal horse serum. This is essentially a "spot" agglutination. As pneumococcus Type I infection is the only one which can as yet be treated with serum, the identification of the other types may be eliminated from consideration, so far as the immediate bacteriologic diagnosis is concerned.

The commercial antistreptococcus serum that we are now using agglutinates in twenty minutes in a dilution of 1:160 the strain of streptococci that were isolated from postmortem specimens. Serum should not be used until it has been tested against the known organism and its agglutinating titer determined.

This method of identification is short, is unencumbered with technical difficulties and gives reliable results.[4]

If the routine procedure for the typing of pneumococci is carried out in conjunction with the blood agar plate method for the identification of the hemolytic streptococcus, the slide agar smear procedure may be eliminated.

The clinical classification of the pneumonias is important, though less so than the classification from the bacteriologic point of view. From the findings here presented it would seem that the disease may be classified according to the causative organism into two main groups, primary pneumococcus and primary streptococcus pneumonia, and a subgrouping, primary pneumococcus and secondary streptococcus pneumonia. The pneumococcus pneumonias are further divided according to Types I, II, III and IV. As to the classification of the streptococcus according to type, however, this particular organism must await further investigation. We now have in stock about eighty antemortem and postmortem strains, and more than 700 from throat swabs which will be studied with the view of possible groupings among them.

VACCINATION AND SERUM TREATMENT

In pursuing this work the following points are to be considered:

(*a*) The advisability of vaccinating by the intravenous route all measles patients that are found to be hemolytic streptococcus carriers. The time elapsing between the measles onset and the appearance of complications is probably sufficient to allow for immunization by this method.

It was at first contemplated to vaccinate only those patients who proved to be carriers of hemolytic streptococci. But since a comparison between the findings of swab and of sputum examinations in a series of cases shows that 25 per cent. of the carriers may be missed when diagnosis depends on a single swab, all patients should be protected. These are divided into three groups, the ratio of carriers to noncarriers being kept the same throughout the work. Each patient in the first or vaccine group is receiving intravenously 100 million hemolytic streptococci on the first day and 500 million on the third day, then on the fifth day 1,000 million subcutaneously. The second or serum group should receive 10 c.c. of antistreptococcus serum intravenously. The third, or vaccine serum group, is receiving 2 c.c. of antistreptococcus serum with 250 million hemolytic streptococci intravenously on the first day, and two subsequent injections of vaccine of the same dosages and routes as those in the first or vaccine group. The sensitization of patients in the last two groups to horse serum is tested by an initial dose, and the mixture of vaccine and serum is tested in animals prior to its injection into the patients in order to rule out the presence of anaphylatoxic symptoms. No untoward symptoms have arisen from these intravenous doses of vaccine and serum. This dosage, however, in work in so initial a stage, must not be considered as definitely determined.

Sufficient time has not yet elapsed to permit of a report on this work. We realize, of course, that, at least from theoretical standpoints, there is objection to universal protective injections of antiserums; but as hemolytic streptococcus pneumonia is as fatal as plague, a limited investigation as here presented would seem justifiable in order to determine the most efficient method of protection. Owing to the fact that the hemolytic streptococcus is now incriminated as the killing organism in streptococcus pneumonia, as well as in a large percentage of so-called "lobar pneumonia" cases in our series it is now contemplated to institute the foregoing vaccine and serum treatment in the latter group of cases.

(*b*) The possibility of developing in the horse a high titer antihemolytic streptococcus serum; this to be used as a preventive as well as a curative. Horses are now being immunized by various methods of injections with the particular strains that have been isolated at necropsy from pure blood cultures.

(*c*) Since approximately 60 per cent. of pneumonias are type epidemic varieties, and at least a large percentage of the remainder hemolytic streptococcus pneumonias, the advisability of carrying out universal vaccination of troops by combining Types I and II pneumonias with the hemolytic streptococcus.

From the findings here presented it would seem that this organism (streptococcus) or group of organisms, is the causative organism in cases of bronchopneumonia, especially those following measles, and the immediate cause of death terminal infection in a certain percentage of lobar pneumonias.

We may now add that the pneumococcus pneumonias in and of themselves are not as fatal as heretofore believed, for in our series of necropsies on cases diagnosed as lobar pneumonia — though not large — the hemolytic streptococcus was isolated from either one of the serous cavities or from the heart's blood in all but two cases. One might ask whether or not this infection in the so-called type pneumonias is common in other parts of the country. We believe it is.

There is no reason to believe that the occurrence of hemolytic streptococcus pneumonia is limited to the Southern Department. This organism is of universal prevalence and has been isolated by us in cases of septic sore throat and scarlet fever in Massachusetts, from septic sore throat and the blood in two cases of fatal septicemia in Michigan, and from scarlet fever and one case of pleural effusion in California. From these facts, universal vaccination of all troops with this organism, as well as with type pneumonias, would seem advisable. From an epidemiologic standpoint, it may be said that this streptococcus is the so-called human type which is often transmitted to cows' udders by milkers, and spread through milk supplies.

This complicating organism is the immediate cause of death, and its terminal extension from the lung explains some of the failures of the antipneumococcus serum. From our series of necropsies it would seem

4. A short (one hour) method of identification of type pneumococci has been perfected by Captain Marshall A. Barber, S. C., U. S. Army, of the Southern Department laboratory, and this will be reported in a short time.

that a specific antistreptococcus serum of a high titer applied in both groups of pneumonias—pneumococcus (in double infections) as well as streptococcus—would be the most efficient agent in reducing the present high mortality of these infections. Especially does this apply to the complicating pneumonias—after measles and scarlet fever — as well as the complications following lobar pneumonias.

It may be regarded as an extremely important point in considering the serum treatment of type pneumonias to determine first whether or not the hemolytic streptococcus is coexistent with type pneumococcus.

In the series of necropsies here reported, the hemolytic streptococcus was found to be the immediate cause of death in 77 per cent. of the cases, it having been found in pure culture in serous exudates or the heart's blood in bronchopneumonia and in common with pneumococci in lobar pneumonia cases.

There is no infection more fatal than hemolytic streptococcus septicemia, and this complication as well as the less serious extension of the lung involvement into the pleural and pericardial sacs must be guarded against by well considered therapeutic treatment. If the invasion by the streptococcus can be limited to the lung tissue it is probable that the mortality from the pneumonias, streptococcus and pneumococcus complicated by streptococcus will be markedly reduced.

From a theoretical consideration, it would seem that vaccination would be of practical value in reducing both the case rate and the mortality in type pneumonias and in broncho streptococcus pneumonias, and especially in the pneumonias following measles as well as other complicating processes after measles.

Since vaccination experiments in animals have shown that a high degree of immunity against both streptococcus and pneumococcus infections can be produced, it would seem reasonable to conclude that a triple vaccine consisting of the hemolytic streptococcus and pneumococci Type I and II would give favorable results.

It may be added that universal vaccination against streptococcus infection should also protect against the complications incident to scarlet fever, as well as against the lung infections of streptococcus and complicated pneumococcus pneumonias.

Amendments to Sanitary Code in 1917.—The January *Bulletin* of the New York State Department of Health reviews the amendments to the Sanitary Code which have been adopted during the past year and calls special attention to the following:

Chancroid gonorrhea and syphilis were added to the list of diseases declared to be communicable; it was made obligatory on every physician, when treating a patient affected with any of these diseases to furnish such a patient with a circular of information approved by the State Commissioner of Health and to instruct them as to the precautions to be taken to prevent the communication of the disease to others. It has been made obligatory on every physician to report to his local health officer all persons bitten by suspected rabid animals and all cases of acute anterior poliomyelitis. In order to inform the local health officers of the occurrence of deaths from communicable diseases other than tuberculosis, it has been made the duty of the local registrar of vital statistics to report immediately to the health officer, the name, age and address of the deceased, whenever a certificate of communicable disease is received, and also the name of the physician who filed the certificate; it is also the duty of the health officer to ascertain whether such person was reported during life as being infected with a communicable disease. A model sanitary code for towns, villages, and third class cities was prepared and recommended for adoption by local authorities. The State Commissioner of Health was given authority to declare extracantonment zones about military camps, and provision has been made for the monthly inspection of such zones by health officers. Regulations were adopted providing for the inspection by health officers of boarding and lodging houses containing people affected with tuberculosis, and licenses are required of boarding houses making a business of boarding children under 12 years of age, away from their parents. More stringent regulations were adopted regulating the practice of midwifery.

A PLEA FOR A MORE FUNDAMENTAL METHOD IN MEDICAL TEACHING

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The recognition of the specialties of medicine made by the Surgeon-General of the United States Army in the early months of the present war represents a step of importance in the progress of medicine, and will obviously promote the efficient care of the wounded. It must to a greater or less extent have an effect on the future of medicine, and it is not unlikely that it may modify medical education, especially as some of the medical schools have in the past few months had experience in the intensive training of groups of military surgeons in the special branches, an experience which in my case has modified extensively my views as to the best methods of teaching.

The experience mentioned has consisted in being associated with four such intensive courses, three at the Harvard Graduate School of Medicine and one at the Army Medical School in Washington. These courses were given to selected military surgeons to acquaint them with some of the fundamentals of orthopedic surgery. To attempt to do more than this in the four, six or eight weeks at our disposal seemed unwise, yet we had in even the shortest of the courses some 130 hours of instruction, far more than any undergraduate would receive in that specialty in any year of his medical course.

Many of these men knew no more orthopedic surgery than is taught in our regular medical school, while others had special experience; but the proposed intensive education naturally had to be adapted for those who knew least. The problem, therefore, was to teach these men as effectively as possible in the time at our disposal. The ordinary method of teaching undergraduates, which consists of instructing the students item by item in the various affections, looked inadequate and proved to be, so that after the first an attempt was made to teach the basic principles of orthopedic surgery and to illustrate these principles clinically.

As the plan apparently proved successful and was intensified in each succeeding course, it has seemed that it might perhaps have a bearing also on the question of undergraduate teaching in this and in other departments in medicine. The matter, therefore, is here discussed from the point of view of a teacher of orthopedic surgery, but with a definite feeling that it has a wider application. I am indebted to my colleague, Capt. Mark H. Rogers, associated with me in the Boston course, for much sympathetic help in the elaboration of the plan.

In the past it has been the custom in general to teach the specialty to the undergraduate by giving didactic or clinical instruction, recitations, or all of them in those different affections which, taken together, might be regarded as constituting orthopedic surgery. Thus scoliosis, clubfoot, the deformities of poliomyelitis, tuberculosis of the spine, flatfoot, torticollis, round shoulders, etc., were taken up one by one, described, demonstrated, illustrated, discussed and dismissed. This is the easy and the obvious way of teaching orthopedic surgery or any allied medical subject, but it is simply making the student, if he,

remembers all that he learns, into a medical encyclopedia with separate, unrelated blocks of information necessarily incomplete in number, because of the impossibility of covering every affection. Although this might pass, and has passed, unchallenged in the undergraduate curriculum, it did not stand the test of intensive instruction when instruction became an unusually serious and responsible business.

The plan was adopted of first taking up general principles, and then illustrating these clinically. It thus became the reverse of the so-called "case system," because the student first heard the principles stated, and after being grounded in them, was made familiar with their application. He did not, as in the "case system," learn to deduce his principles from clinical experience. It was felt that in training necessarily short, but which must be comprehensive, no matter how abundant the supply of clinical material might be, it was safer to ground the student in the fundamentals and teach him to apply them to patients. In this way he would, or should, be better able to approach a new and unusual condition which he had not met clinically.

For the carrying out of this plan it became necessary to arrange the subjects to be taught in groups. The different systems or structures of the body, the joints, the muscles, etc., seemed to offer the best basis of correlation, and in these groups were placed the affections of the different systems. The plan adopted for this method of teaching this specialty was as follows:

AFFECTIONS OF THE JOINTS

The anatomy of the joints was briefly spoken of, and their general structure, components and varieties described. The physiology of joints was alluded to, and attention called to the facts that use means increase of synovia, that muscles of normal strength are necessary for good joint function and stability, etc. Then came a short statement of the pathologic reaction of joints to trauma, infection or toxins, and it was shown that in the beginning joints react in the same way to the various abnormal influences; that first come hyperemia of the synovial membrane, swelling and increased secretion, and that from this point on one of four cases is generally followed: (1) recovery with a reversal of the acute process; (2) a chronic condition which is a prolongation of the acute; (3) suppuration, and (4) destruction or degeneration, perhaps leaving an ankylosis. Muscle atrophy was shown to be an early accompaniment of all joint affections, and muscle spasm was demonstrated as a reflex tonic contraction of articular muscles in painful and serious joint affections, while ankylosis was shown to be the result of destruction of some part of the joint and to be regarded as a cicatrix.

Cases of any joint affection were then shown, and the students, when possible by personal examination and questioning, were made to identify the general signs described above and to account for them on general pathologic principles. Etiology and special pathologic processes were not at this time discussed. Traumatic affections of joints were then taken up, and a few words said about the peculiarities of different joints in their reaction to trauma; for example, that in the knee the synovial membrane is accessible to examination, but that it is not so in the hip and spine, and that in the latter one must depend more on stiffness, malposition, etc. Cases of traumatic joint affections were then presented, general signs were demonstrated by the students, general conclusions and conclusions as to the pathologic process of the individual case were drawn, differential diagnosis was discussed, and a treatment was formulated to meet the pathologic needs of the individual case. Following this, infections of the joints were taken up and the pathologic peculiarities of tuberculosis described and demonstrated by specimens, lantern slides and roentgenograms. Clinical demonstrations followed along the same lines as those employed with traumatic affections. Acute infections, nontuberculous arthritis, syphilis, intermittent hydrops, hemophilia, etc., were taken up in the same way. Finally, ankylosis was further discussed and clinically demonstrated, positions desirable for stiff joints were elaborated, passive motion and ankylophobia were discussed, and the subject of joints was dismissed.

I had the feeling each time this one department was completed that the student had been furnished with an alphabet by which to spell out the conditions as he met them rather than an incomplete encyclopedia, the items of which he might or might not remember correctly. As this division of the subject has been dwelt on at length, the others may be mentioned much more briefly.

DISEASES AND AFFECTIONS OF THE BONES

The general structure of bone, its growth, regeneration and repair were taken up, and next came a consideration of the various pathologic processes affecting bones, with their peculiarities and characteristics, which were demonstrated clinically and by operations. This included acute and chronic osteomyelitis, syphilis, rickets, osteomalacia, fragilitas ossium, achondroplasia, Paget's disease, etc.

AFFECTIONS OF THE MUSCLES OR, MORE PROPERLY, THE NEUROMUSCULAR MECHANISM

The passage of a motor impulse from brain to muscle was described, the upper and lower neurons mentioned, and the distributing function of the synapse showed. The general laws of reflexes were next considered and the general phenomena of muscles discussed, it being pointed out that they are easily fatigued and stretched, always under tension unless paralyzed, and easily developed by exercise. It was then mentioned that the orthopedic surgeon, especially in the field, would have to deal with the deformities caused by focal cord lesions, and lesions of the cerebral motor area and of the peripheral nerves. The essential characteristics of each were pointed out.

The cord lesions were demonstrated, by means of patients, in acute poliomyelitis and fracture of the spine; cerebral lesions, in cerebral spastic paralysis; and peripheral lesions by obstetric paralysis.

STATIC AFFECTIONS

That muscular weakness far short of paralysis might cause deformity was pointed out. The mechanism and anatomy of the foot were described, and its abnormalities under unfavorable conditions of general health, overuse, bad shoeing and overweight were discussed and then clinically analyzed after the general principles had been elaborated. Bad attitude and scoliosis were taken up in the same way, after certain elementary considerations as to the mechanics of the spine and posture in general.

CONGENITAL DEFORMITIES

However comprehensive this or any scheme may be, a heterogeneous group of congenital deformities remains to be considered, and these apparently must be taught by the old itemized method after a short statement of our knowledge, or rather lack of knowledge, of the cause and mechanism of congenital deformities.

APPARATUS

In no part of the subject has the need of generalized instruction been more evident than in the question of apparatus.

This subject has generally been taught through a description by name, in connection with each condition, of some especial apparatus that is used for its treatment, for example, the Thomas splint for hip disease. For the subject of apparatus to be taught effectively, it must be approached in a broader way, and the student made to formulate in each pathologic condition the mechanical requirements, if any, based on the special pathology and his knowledge of joint physiology and mechanics. The student's general attitude is that tuberculosis of the hip requires a brace, the name of which he may or may not recall and of whose mechanical use he knows little or nothing. It is essential to have him learn to recognize that hip tuberculosis requires fixation or traction or both; that this need is determined by the activity and the acuteness of the process in the individual case; that there are many methods of obtaining these ends mechanically, and that the student should recognize the mechanical problem, the crudest way of meeting it, and then the elaboration of crude methods into light and efficient apparatus. This would give the man, especially in the military service, some resource in improvising apparatus, and make him more intelligent in the choice of a method. One would then teach that apparatus was of all kinds: "Wooden splints for fractures are apparatus; so is plaster of Paris. Iron, leather, celluloid, aluminum, papier mâché, etc., also may be. The purposes for which apparatus is used should be shown as being (1) for fixation; (2) for traction; (3) for protection or stilting, and (4) to correct deformity. In short, the student should be taught to state what he is trying to do in the individual case in mechanical terms, to work out the principle in crude material, and then be made familiar with accepted forms of apparatus suited to such a case.

RECONSTRUCTION

The question of the rehabilitation of the wounded man and his vocational training must be considered as a special subject, not only because the man disabled in war must be provided for, but also because our knowledge of the rehabilitation of war cripples must be applied later to industrial conditions, and the man crippled in industrial life will never in the future be neglected as he has been in the past.

The general principles on which the best reconstruction work is founded, and the selective aspect and the man's adaptability to a special job as well as the adaptation of the occupation to the individual, are unfolded.

The use of artificial legs and arms, their measurements and fitting, precautions to be taken with the stump and joints of the limb, adaptive additions to artificial limbs, and similar subjects are covered.

SUMMARY

It will be seen that the crude scheme just described covers all those affections which by the broadest possible interpretation can be included in orthopedic surgery, and that it groups them and gives the student connecting links on which to correlate his impressions, and makes a definite attempt to ground him in fundamentals and to teach him from these fundamentals to elaborate his own details. This method is probably in use in certain departments of medicine and perhaps by some men in all departments; but that it is not the common method would be generally admitted. In the intensive teaching of a special branch to mature men it has been most successful. It would seem as if the undergraduate approaching orthopedic surgery would emerge from his instruction a sounder man if this method were employed than if he merely received instruction in one item after another, however good that instruction might be.

The scheme as presented above is, however, incomplete, because much of the instruction advocated belongs to the departments of anatomy, physiology and pathology, and should be given in those departments and not in orthopedic surgery. However, instruction in most medical schools is imperfectly correlated, and it proved necessary to instruct the men in these special applications of anatomy, physiology and pathology because they did not know them well enough to make practical use of them, and the men in question came from many different schools.

A broader scheme, which it is not wise to advocate under war conditions, would point to a more effective correlation of work between the preclinical and the clinical departments in the medical school of the future, without in any way impairing the principle of proceeding from the general to the special as an educational principle.

Smoking and Rifle Shooting.—Some experiments were conducted by the National War Council of the Y. M. C. A. to determine whether smoking affected accuracy in rifle shooting. Smoking and nonsmoking students of the Y. M. C. A. College at Springfield, Mass., participated. In marking the skill of the shooters both the score and the deviation in score covering a certain number of shots before and after smoking were considered. In the first experiment without smoking, five shots were fired, then a rest of thirty minutes and five more shots. In the second, during the interval one cigar was smoked. In a third, two cigars were smoked during an interval of sixty minutes. In a fourth two cigarets were smoked. In the fifth the first experiment was repeated. The shooting was at a target from the prone position with a rifle shooting a 0.22 long cartridge. In the first experiment the group average was 38.1 and after resting, 41; before resting the total deviation was 9.23 per cent.; after resting, 7.04 per cent., a decrease in deviation of 12.8 per cent. After one cigar there was a loss of 4.8 in score and an increase in deviation of 24 per cent. After two cigars there was a loss in score of 6 per cent. and an increase in deviation of 26.4 per cent. After two cigarets there was a loss in score of 1.8 per cent. and a decrease in deviation of 1 per cent. In the last experiment, without smoking, but with a rest of thirty minutes, there was a gain of 13.2 in scoring and a decrease of 9.9 per cent. in deviation. The whole group decreased in efficiency after smoking, greater after two cigars than one, but less after the two cigarets than after the cigars. The smokers were affected the least by the smoking, but the nonsmokers were the more efficient after rest. The experiments indicate that soldiers and sportsmen would be better marksmen if they did not smoke.

STATE BOARD STATISTICS FOR 1917

ANNUAL PRESENTATION BY THE COUNCIL ON MEDICAL EDUCATION OF RESULTS OF STATE BOARD EXAMINATIONS

On pages 1074 to 1083 are three tables, A, B and C, giving in detail the results of the various state medical license examinations held during 1917. Full reports were obtained from all state licensing boards and were carefully verified.

Tables A and B, when read from left to right, show (*a*) the number of graduates appearing for examination in each state, (*b*) whether they passed or failed, (*c*) the total number examined during the year, (*d*) the number who passed, (*e*) the number who failed, (*f*) the percentage of failures, and (*g*) the number of states in which graduates of each school appeared for examination. Read from above downward, they give the results by states, showing (*h*) the number registered and rejected from each college, (*i*) the total number examined, (*j*) the total number registered, (*k*) the total number rejected, and (*l*) the percentage of rejections. The fact that the majority of graduates take the license examination in the state in which the college is located is shown by the dark diagonal zone made by the grouping of figures passing from the upper left to the lower right corner of each table. This shows also that the states in which low-grade medical schools are permitted to exist are themselves the recipients of the greater portion of the ill-trained output of such schools. These tables are worthy of careful study, since important deductions are possible. The marginal numbers will enable one to follow readily the line for any college.

Caution in Forming Conclusions

In making comparisons on the basis of these statistics, several factors should be kept in mind. The number examined is important, since, if all other conditions are equal, the larger the number of graduates examined, the more accurate is the finding. But other conditions are seldom equal. The number of states in which a school's graduates have been examined is important. The larger this number the more accurate will be the conclusions. Again, the character of the board making the examination and the methods employed are important factors to be considered, since some boards hold very careful examinations and include practical laboratory and clinical tests, or they may mark the papers more severely; while others, especially partisan boards, may be very lenient. In this connection it should be stated that, although conditions are undergoing a steady improvement, it is still true that the character of the license examination as usually conducted is such that graduates of colleges conducted largely by quiz-class methods may easily be successful in passing it. It is particularly important, in forming conclusions based on these statistics, to note for each college the states in which its graduates are not admitted to examination-information set forth with these statistics in Table D.

Graduates of All Years Examined in 1917

Table A shows the results for all candidates who took examinations in 1917, regardless of the years in which they graduated. This shows that altogether 4,730 candidates were *examined* last year, as compared with 4,850 in 1916, 5,313 in 1915, 5,570 in 1914 and 6,435 in 1913. There has been a steady decrease each year since 1906, when 8,035 physicians were examined. The decrease each year has been due largely to (*a*) the wider extension of reciprocity, and (*b*) the general diminution in the number of medical colleges, students and graduates. Of those examined this year, 14.1 per cent. failed, as compared with 15 per cent. in 1916, 15.6 per cent. in 1915, 21.6 per cent. in 1914 and 18.6 per cent. in 1913. This reduction in the percentages of failures indicates improved medical teaching, since there is reason to believe that methods of examination have not been relaxed but are more carefully conducted than formerly.

There were 89 medical colleges in the United States granting degrees in 1917 which had graduates examined, the same number as in 1916. There were 93 in 1915, 96 in 1914 and 99 in 1913. There has been a decrease of 64 since 1905, when 153 medical colleges in the United States had graduates examined. The figures regarding graduates of medical schools which have ceased to exist, either through merger or otherwise, have been included in the line for miscellaneous colleges.

Foreign graduates were examined in 16 states, the total number being 79, and of this number 37, or 46.8 per cent., failed. The largest number of foreigners examined in any state was 18 in New York, where 8, or 44.4 per cent., failed. Graduates of Canadian schools were examined in thirteen states, more appearing, naturally, in the border states. The figures for the Canadian colleges are given separately in order to show the number of candidates coming from each, and to show the successes of their graduates at the examinations. Altogether, 34 candidates from Canadian colleges were examined, of whom 8, or 23.5 per cent., failed. Of all Canadian colleges, the University of Toronto had the largest number examined. The highest percentages of failures were for Queen's University, 50.

Undergraduates and Osteopaths Examined During 1917

For the last two years no undergraduates have been examined. The number examined each year has constantly diminished since 1906, when 703 undergraduates were examined and 342 were licensed. Colorado is now the only state which will examine nongraduates, but only four have been licensed in that state in twelve years. The door has been closed, therefore, against the admission to practice of those whose medical training is known to be incomplete.

During 1917, in California, 151 graduates of osteopathic colleges were admitted to the regular examination for licenses as physicians and surgeons, and of this number, 73, or 48.3 per cent., were granted licenses. Of the total examined, 59 were given merely the "oral, practical or clinical" examination, and of this number, 24, or 40.7 per cent., were registered. (See Tables I and J.)

Recent Graduates Examined During 1917

Table B gives the results for graduates of 1913 to 1917, inclusive, examined during 1917. This table is important, since it deals with recent graduates, and is, therefore, the fairest basis for comparison between colleges. Of all candidates examined in 1917, 4,015, or 87.8 per cent., were recent graduates, and of this number, 10.1 per cent. failed, as compared with 12.9 per cent. for all candidates.

Old Practitioners Examined During 1917

Table C is so arranged as to show in comparison the results for graduates of all years (first column), for recent graduates (second coloumn), for graduates of 1912 and previous years (third column), and for graduates of 1917 (fourth column). Of the graduates of 1912 and previous years—"old practitioners"—564 were examined, and of this number 185, or 32.6 per cent., failed, as compared with 10.1 per cent. of failures for recent graduates. This high percentage of failures is due largely to the long time these candidates have been out of college and to the fact that they are required to take the same examination as recent graduates. Justice to these older physicians, who have been licensed, but who, for good reasons, desire to change their locations, is a strong argument for interstate reciprocity in medical licensure; for the use of practical examinations by which they may show their skill in diagnosis and treatment, and for special percentage allowances for years of active practice. The total number of these candidates is diminishing each year as

CONTINUED ON PAGE 1086

Marginal Number	NAME OF COLLEGE	1 Alabama P	1 Alabama F	2 Alaska P	2 Alaska F	3 Arizona P	3 Arizona F	4 Arkansas P	4 Arkansas F	5 California P	5 California F	6 Colorado P	6 Colorado F	7 Connecticut P	7 Connecticut F	8 Delaware P	8 Delaware F	9 Dist. Columbia P	9 Dist. Columbia F	10 Florida P	10 Florida F	11 Georgia P	11 Georgia F	12 Idaho P	12 Idaho F	13 Illinois P	13 Illinois F	14 Indiana P	14 Indiana F	15 Iowa P	15 Iowa F	16 Kansas P	16 Kansas F	17 Kentucky P	17 Kentucky F	18 Louisiana P	18 Louisiana F	19 Maine P	19 Maine F	20 Maryland P	20 Maryland F	21 Massachusetts P	21 Massachusetts F	22 Michigan P	22 Michigan F	Marginal Number
	ALABAMA																																														
1	University of Alabama School of Medicine	13	0																	1	0	1	0																									1
	ARKANSAS																																														
2	University of Arkansas Medical Department							16	1																																				1	0	2
	CALIFORNIA																																													
3	College of Medical Evangelists									12	0							1	0																											3
4	College of Physicians and Surgeons, Los Angeles					2	0			30	0																																			4
5	College of Physicians and Surgs., San Francisco									6	3																																			5
6	Hahnemann Medical College of the Pacific—H.									16	1																																			6
7	Leland Stanford Junior Univ. School of Medicine									20	0																																			7
8	Oakland College of Medicine and Surgery									4	0																																			8
9	University of California Medical School					1	0			25	0															1	0																			9
	COLORADO																																														
10	University of Colorado School of Medicine									0	1	20	0													1	0																			10
	CONNECTICUT																																														
11	Yale University School of Medicine													9	0																													1	0			11
	DISTRICT OF COLUMBIA																																														
12	Georgetown University School of Medicine													1	0			2	0																								1	0			12
13	George Washington University Medical School							1	0									8	0					1	0	1	0											1	0							13
14	Howard University School of Medicine													1	0																											2	0	0	1			14
	GEORGIA																																														
15	Emory University School of Medicine	7	2																	3	0	59	0																			1	0	1	0	15
16	University of Georgia Medical Department																					11	0																			1	0			16
	ILLINOIS																																													
17	Chicago College of Medicine and Surgery	1	0	1	0			1	0	1	0	2	0	0	1			1	0			3	0	1	0	155	34	4	0	1	0			2	0	2	1	0	1	1	0	1	4	3	0	17
18	Chicago Hospital College of Medicine																									15	8																			18
19	Hahnemann Medical College and Hospital—H.																					1	0			27	4					1	0			1	0						2	0	19
20	Jenner Medical College																									21	5																			20
21	Loyola University School of Medicine	1	0					1	0	1	1									0	1	2	0			78	15			2	0							1	0	1	1	1	1			21
22	Northwestern University Medical School					1	0																	2	0	28	1			3	0											1	0			22
23	Rush Medical College (University of Chicago)					4	0			4	0							1	0	1	0			2	0	91	1			5	0	1	0									1	0	1	0	23
24	University of Illinois College of Medicine					2	0			1	0													2	0	35	1			2	1											1	0	3	0	24
	INDIANA																																														
25	Indiana University School of Medicine					1	0					1	0									1	0					25	0	1	0															25
	IOWA																																													
26	State University of Iowa College of Medicine																							1	0	1	0			19	0															26
27	State Univ. of Iowa Coll. of Homeo. Med.—H.																													1	0															27
	KANSAS																																														
28	University of Kansas School of Medicine																															14	0													28
	KENTUCKY																																														
29	University of Louisville Medical Department	1	0			3	0	1	0																	2	3	4	0	1	0	1	0	40	5							1	0			29
	LOUISIANA																																														
30	Tulane University of Louisiana School of Med.	4	1							1	0	1	0							2	0	2	0									1	0			34	1									30
	MAINE																																														
31	Bowdoin Medical School					1	0							2	0			1	0																			8	0			2	1			31
	MARYLAND																																														
32	Johns Hopkins University Medical Department	2	0											4	0	1	0	1	0	1	0					2	0	2	0											38	2	7	0	3	0	32
33	Univ. of Maryland Sch. of Med. & Coll. of P. & S.					1	1							4	2	2	0	3	0	4	1					1	0													29	4	3	3			33
	MASSACHUSETTS																																														
34	Boston University School of Medicine—H.					1	0																																	4	0			27	4			34
35	College of Physicians and Surgeons, Boston																	0	1																					1	0	1	0	4	11			35
36	Medical School of Harvard University									2	0	1	0	4	1			1	0	1	0					2	0					1	0							3	0			59	0			36
37	Middlesex College of Medicine and Surgery																																										1	1			37
38	Tufts College Medical School									2	1			3	4					1	0	1	0																	9	0			70	5			38
	MICHIGAN																																														
39	Detroit College of Medicine and Surgery																																											0	1	50	2	39
40	University of Michigan Medical School							1	0					0	1					3	0									1	0											3	0	48	1	40
41	University of Michigan Homeo. Med. School—H.																																											3	0	41
	MINNESOTA																																														
42	University of Minnesota Medical School																									1	0																			42
	MISSOURI																																													
43	Eclectic Medical University—E.							4	1															0	1																			43
44	Kansas City College of Medicine and Surgery—E.							21	6		4			3	0																															44
45	National University of Arts and Sciences																							1	0	0	1																	45
46	St. Louis College of Physicians and Surgeons									0	1	1	1													1	1																			46
47	St. Louis University School of Medicine					1	0																			3	0			1	0													47
48	Washington University Medical School	1	0																							1	0					1	0									1	0			48
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		18		10		20		21		22

H. = Homeopathic; E. = Eclectic; P. = Passed; F. = Failed.

Marginal Number	23		24		25		26		27		28		29		30		31		32		33		34		35		36		37		38		39		40		41		42		43		44		45		46		47		48		49		50		Totals	Examined—Passed	Examined—Failed	Percentage of Failures	No. States Exam. in	Marginal Number
	Minnesota		Mississippi		Missouri		Montana		Nebraska		Nevada		New Hampshire		New Jersey		New Mexico		New York		North Carolina		North Dakota		Ohio		Oklahoma		Oregon		Pennsylvania		Rhode Island		South Carolina		South Dakota		Tennessee		Texas		Utah		Vermont		Virginia		Washington		West Virginia		Wisconsin		Wyoming								
	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F							
1			2	0																							1	0																											18	18	0	0.0	5	1
2																																																							18	17	1	5.6	2	2
3																																																													
4																																									1	0							2	0					13	13	0	0.0	2	3
5											1	0																	3	0																									55	55	0	0.0	4	4
6									1	0																			1	0																			2	0					13	10	3	23.1	3	5
7																			0	2																																			21	20	1	4.8	4	6
8																																																							22	20	2	9.1	2	7
9																																																							4	4	0	0.0	1	8
																																																						27	27	0	0.0	3	9
10							1	0																																	1	0	2	0									1	0	27	26	1	3.7	7	10
11																			1	0													1	0																					12	12	0	0.0	4	11
12																																																				1	0			5	5	0	0.0	4	12
13					1	0													5	1																			1	0															22	21	1	4.5	9	13
14					2	0									2	0			1	1	4	0			1	0					1	0							1	0							2	0							19	17	2	10.5	11	14
15																			1	0	3	0													1	0	5	5			1	0													89	82	7	7.9	10	15
16																			0	1															2	1																			16	14	2	12.5	4	16
17			2	1	3	0	5	2	1	0													1	0	6	0											2	0					1	0			4	0	3	1	9	2	2	0	266	219	47	17.7	30	17
18																																																											
19					1	0																			1	0			2	0									1	0											3	0			23	15	8	34.8	1	18
20																																																									44	40	4	9.1	10	19
21			2	0	4	0	1	1																	1	0							1	0					1	0			1	0					3	1	2	1			127	105	22	17.3	20	21
22	1	0			2	0	1	0											1	0					1	0	1	0	1	0															4	0			1	0			49	48	1	2.0	14	22
23	8	0			2	0	5	3	1	0									1	0			1	0	4	0	2	0	1	0					6	0			2	0							3	0			11	0	1	0	163	150	4	2.5	24	23
24	3	0			3	0	3	0															1	0			2	0	3	1					1	0			1	0							6	0			1	0			73	70	3	4.1	17	24
25	1	0																																																						30	30	0	0.0	6	25
26							2	0																																	1	0													24	24	0	0.0	5	26
27																																					1	0																	2	2	0	0.0	2	27
28					1	0																																																	15	15	0	0.0	2	28
29					1	0	1	2			1	0							3	0	1	0			2	0	0	1	1	0					1	0	1	0	1	0							1	1	4	1					85	72	13	15.3	22	29
30			7	0															1	1	1	0			2	0													9	0															68	65	3	4.4	12	30
31																																																							15	14	1	6.7	5	31
32	5	0			2	0							1	0	1	0			12	2					1	0			1	0	6	0	1	0															1	0			97	93	4	4.1	21	32
33							0	3					2	0	2	0			9	4	2	0			1	0	1	0			8	1	2	0	1	0					2	0	1	0	1	0			9	2			109	88	21	19.3	22	33
34					1	0			1	0			1	0					0	2													1	0	0	1					1	0													44	37	7	15.9	10	34
35																																																							18	6	12	66.7	4	35
36	3	0			4	0													8	2	1	0			2	0	1	0	1	0	3	0	4	0					1	0			1	0									106	103	3	2.8	20	36
37																																																						2	1	1	50.0	1	37
38													1	0					5	6					1	1							2	0									1	0									113	96	17	15.0	11	38
39																																																									
40	1	0					1	0											3	2			0	1			1	0									1	0															55	52	3	5.5	4	39
41							1	1											1	2																									2	0									70	64	6	8.6	12	40
42	32	0					1	1															1	0			1	0																			1	0							39	38	1	2.6	7	42
43																																																										
44																																																										
45					42	0																																																						
46					11	1																					1	0																			1	0					46	45	1	2.2	5	45
47					38	0	1	1																			1	1	1	0							0	1	0	1	1	0											23	16	7	30.4	9	46
48					19	0	2	0																													1	0											1	0					49	48	1	2.0	9	47
																											2	0	1	0					1	0											1	0			1	0	31	31	0	0.0	11	48
	23		24		25		26		27		28		29		30		31		32		33		34		35		36		37		38		39		40		41		42		43		44		45		46		47		48		49		50								

Marginal Number	NAME OF COLLEGE	1 Alabama P	1 Alabama F	2 Alaska P	2 Alaska F	3 Arizona P	3 Arizona F	4 Arkansas P	4 Arkansas F	5 California P	5 California F	6 Colorado P	6 Colorado F	7 Connecticut P	7 Connecticut F	8 Delaware P	8 Delaware F	9 Dist. Columbia P	9 Dist. Columbia F	10 Florida P	10 Florida F	11 Georgia P	11 Georgia F	12 Idaho P	12 Idaho F	13 Illinois P	13 Illinois F	14 Indiana P	14 Indiana F	15 Iowa P	15 Iowa F	16 Kansas P	16 Kansas F	17 Kentucky P	17 Kentucky F	18 Louisiana P	18 Louisiana F	19 Maine P	19 Maine F	20 Maryland P	20 Maryland F	21 Massachusetts P	21 Massachusetts F	22 Michigan P	22 Michigan F	Marginal Number
	NEBRASKA																																													
49	John A Creighton Medical College	..	..	..	..	..	..	..	..	0	1	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	49
50	Lincoln Medical College, Lincoln, Neb.—E.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	50
51	University of Nebraska College of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	51
	NEW YORK																																												
52	Albany Medical College	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	52
53	Columbia University College of Phys. & Surgs.	1	0	..	..	..	..	..	..	1	0	..	..	5	0	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	53
54	Cornell University Medical College	..	..	..	..	..	..	..	..	1	0	..	..	1	0	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	54
55	Fordham University School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	2	1	2	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	55
56	Long Island College Hospital	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	1	0	1	0	1	0	..	..	56
57	N. Y. Homeo. Med. Coll. and Flower Hosp.—H.	..	..	..	..	1	0	..	..	..	..	..	..	7	0	2	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	57
58	New York Med. Coll. and Hosp. for Women—H.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	58
59	Syracuse University College of Medicine	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	59
60	University and Bellevue Hospital Med. Col.	..	..	..	..	..	..	..	..	..	..	..	..	3	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	1	0	..	..	..	..	1	0	60
61	University of Buffalo Department of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	61
	NORTH CAROLINA																																												
62	North Carolina Medical College	0	1	..	..	..	..	..	..	..	..	2	0	..	..	..	..	..	..	1	1	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	62
	OHIO																																												
63	Eclectic Medical College—E.	..	..	..	..	..	..	1	0	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	1	0	..	..	1	0	1	0	1	0	..	..	..	..	..	..	1	0	..	..	63
64	Ohio State University College of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	64
65	Ohio State University Coll. of Homeo. Med.—H.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	65
66	University of Cincinnati College of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	66
67	Western Reserve University School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	67
	OKLAHOMA																																												
68	University of Oklahoma School of Medicine	0	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	1	1	0	68
	OREGON																																												
69	University of Oregon Department of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	69
	PENNSYLVANIA																																												
70	Hahnemann Medical College and Hospital—H.	..	..	..	..	..	..	..	..	..	..	..	..	1	0	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	70
71	Jefferson Medical College	2	1	..	..	5	0	..	..	2	0	1	0	3	0	3	0	0	1	3	1	1	0	1	0	1	0	..	..	1	0	1	0	..	..	..	..	2	0	3	0	3	0	..	..	71
72	Medico-Chirurgical College of Philadelphia	..	..	..	..	..	..	..	..	..	..	..	..	2	0	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	0	..	..	72
73	Temple University Department of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	0	..	..	73
74	University of Pennsylvania School of Medicine	2	0	..	..	..	..	..	..	1	0	..	..	1	1	2	0	1	0	2	0	..	..	1	0	3	0	2	0	2	0	..	..	..	..	1	0	..	..	..	..	5	0	1	0	74
75	University of Pittsburgh School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	75
76	Woman's Medical College of Pennsylvania	..	..	..	..	..	..	..	..	..	..	1	0	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	2	0	1	0	76
	SOUTH CAROLINA																																												
77	Medical College of the State of South Carolina	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	77
	TENNESSEE																																												
78	Lincoln Memorial University Medical Department	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	1	0	..	..	2	4	..	..	..	..	..	..	..	..	..	..	78
79	Meharry Medical College	1	3	..	..	..	..	5	0	..	..	..	..	0	1	..	..	1	2	2	1	10	1	..	..	4	11	0	1	..	..	..	..	16	7	2	3	..	..	1	1	0	1	..	..	79
80	University of Tennessee College of Medicine	2	1	..	..	..	..	18	0	..	..	0	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	0	1	..	..	..	..	..	..	..	..	80
81	Univ. of West Tennessee Coll. of Med. and Surg.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	2	..	..	..	..	..	..	..	..	0	1	..	..	81
82	Vanderbilt University Medical Department	3	0	..	..	..	..	0	1	3	0	1	0	..	..	..	..	..	..	2	0	1	0	..	..	2	0	..	..	..	..	1	0	6	0	1	0	..	..	..	..	..	..	..	..	82
	TEXAS																																												
83	Baylor University College of Medicine	..	..	..	..	..	..	1	0	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	83
84	Fort Worth School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	1	..	..	..	..	..	..	..	..	84
85	University of Texas Department of Medicine	..	..	1	0	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	85
	VERMONT																																												
86	University of Vermont College of Medicine	..	..	..	..	..	..	..	..	1	0	..	..	8	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	0	..	..	86
	VIRGINIA																																												
87	Medical College of Virginia	..	..	..	..	..	..	..	..	0	1	..	..	1	1	..	..	..	..	1	0	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	1	..	..	..	..	87
88	University of Virginia Department of Medicine	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	1	0	..	..	88
	WISCONSIN																																												
89	Marquette University School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	89
	CANADA																																												
90	Laval University Faculty of Medicine	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	90
91	McGill University Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	1	0	..	..	3	0	..	..	91
92	Queen's University Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	92
93	University of Manitoba, Manitoba Medical College	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	93
94	University of Toronto Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	1	0	94
95	Western University Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	95
96	Foreign Colleges	..	..	..	..	0	1	..	..	6	4	..	..	2	1	..	..	..	..	..	..	..	..	..	..	3	8	..	..	..	..	..	..	..	..	0	1	..	..	..	..	0	3	..	..	96
97	Miscellaneous Medical Colleges	2	11	..	..	6	3	9	3	1	2	3	0	1	2	..	..	2	3	10	7	5	1	6	1	4	8	1	1	..	..	..	..	..	..	2	5	1	0	0	2	5	3	2	0	97
98	Nondescript Colleges	..	..	..	..	..	..	..	..	73	78	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	98
99	**Totals by States**	66		2		37		92		339		40		94		14		33		56		102		22		588		41		46		27		84		57		34		93		261		128		99
100	**Totals—Examined—Passed**	45		2		32		80		235		38		72		14		26		44		100		20		487		39		45		24		68		44		33		82		219		125		100
101	**Totals—Examined—Failed**	21		0		5		12		94		2		22		0		7		12		2		2		101		2		1		3		16		13		1		11		42		3		101
102	**Percentage of Failures**	31.8		0.0		13.5		13.0		27.7		5.0		23.4		0.0		21.2		21.4		2.0		9.1		17.3		4.9		2.2		11.1		19.0		22.8		2.9		11.8		16.0		2.3		102
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		

H. = Homeopathic; E. = Eclectic; P. = Passed; F. = Failed.

Marginal Number	23		24		25		26		27		28		29		30		31		32		33		34		35		36		37		38		39		40		41		42		43		44		45		46		47		48		49		50						
	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F						
	Minnesota		Mississippi		Missouri		Montana		Nebraska		Nevada		New Hampshire		New Jersey		New Mexico		New York		North Carolina		North Dakota		Ohio		Oklahoma		Oregon		Pennsylvania		Rhode Island		South Carolina		South Dakota		Tennessee		Texas		Utah		Vermont		Virginia		Washington		West Virginia		Wisconsin		Wyoming		Totals	Examined—Passed	Examined—Failed	Percentage of Failures	No. States Exam. in	Marginal Number
49					1	0	4	2	35	0																			0	1							1	0									2	0					3	0	52	48	4	7.7	10	49
50									6	0																																													1	0	7	7	0	0.0	2	50
51									15	0									1	0																	1	0																	1	0	18	18	0	0.0	4	51
52																			50	10															1	0																			63	52	11	17.4	3	52
53	1	0			1	0									1	0			81	15									1	0									1	0							1	0			1	0			111	96	15	13.5	12	53
54							1	0											21	0											1	0																							26	26	0	0.0	6	54
55																			48	7									1	0																									58	51	7	12.0	3	55
56											1	0							68	3			1	0																															79	75	4	5.1	8	56
57															1	0			54	36	0	1							1	0																									105	67	38	36.2	8	57
58																			13	0																																			14	14	0	0.0	2	58
59					1	0													29	0									1	0									1	0													33	33	0	0.0	5	59
60													1	0	3	0			61	5											1	0																							77	72	5	6.5	8	60
61																			54	6									3	0	1	0																							65	59	6	9.2	4	61
62																					13	0													1	0											2	0							22	20	2	4.5	7	62
63							1	0											1	1					22	1			2	0																			1	0					36	34	2	5.6	12	63
64																			1	0					63	0																			1	0			5	0					70	70	0	0.0	4	64
65																									8	0																													8	8	0	0.0	1	65
66																									13	0	1	0			4	0			0	1																	1	0	21	20	1	4.8	6	66
67											1	0													32	0					2	0									1	0													38	38	0	0.0	6	67
68																			1	1							27	0	1	0					0	2																			36	31	5	13.9	8	68
69							1	0											1	0									9	0																					3	0					14	14	0	0.0	4	69
70																			2	2					3	0					11	1															2	0							23	20	3	13.0	6	70
71			2	0	1	0	1	0	1	0					4	0			7	5	12	0			6	0	1	0	3	1	67	2			3	0									2	0			1	0	4	1					159	147	12	7.5	31	71
72					1	0									8	0			5	3	0	1									53	1	1	0															1	0					83	77	6	7.2	11	72
73																															16	0																			1	0			21	21	0	0.0	5	73
74					1	0					1	0			1	0			9	2	6	0			4	0	2	0			20	1							1	0	1	0							2	0	1	0	1	0	78	74	4	5.1	26	74
75																									3	0					21	0																							24	24	0	0.0	2	75
76																			7	2	2	0			1	0					9	0																	1	0					28	26	2	7.1	10	76
77																			1	0	1	0													18	4																			26	22	4	15.4	4	77
78																					1	0																	7	0															17	13	4	23.5	6	78
79			1	2	12	8															4	5			2	1	2	0							1	4			55	3	10	2					1	0			1	0			188	131	57	30.3	22	79
80			2	0																															0	1			28	0	3	1													59	54	5	8.5	9	80
81					2	3																																	6	6	1	0													21	9	12	57.1	5	81
82					1	0	1	0											3	0					3	0	1	0									0	1			61	0	5	0													97	95	2	2.1	18	82
83					1	0																																			13	1	1	0													19	18	1	5.3	6	83
84																											1	0													15	0															17	16	1	5.9	3	84
85			1	0																																					44	0															47	47	0	0.0	4	85
86																			5	2											2	0	1	0			1	0							9	0											37	31	6	16.2	8	86
87																			2	3	14	1							1	0	1	0	1	0							0	1					42	4			12	1			93	80	13	14.0	13	87
88			1	0																																										11	0							16	16	0	0.0	6	88
89	2	0					1	0																	1	0																									7	0			11	11	0	0.0	4	89
90																																																						1	1	0	0.0	1	90
91															1	0			2	1													1	0																	1	0			13	11	2	15.4	8	91
92																			4	5																																			10	5	5	50.0	2	92
93																							1	0																															1	1	0	0.0	1	93
94																			4	1																																			8	7	1	12.5	4	94
95																																																						1	1	0	0.0	1	95
96	2	0													2	4			10	8					3	0			0	4	1	1							5	0			1	0			6	2			1	0			79	42	37	46.8	16	96
97	1	0	3	2	7	0	8	8	2	0	3	0			0	2			2	2	0	2			1	1	1	1	8	3	4	2	2	0	3	9	1	0	3	0	1	0			0	1			7	3	3	1			3	0	213	124	89	41.7	39	97
98																																																						151	73	78	51.7	1	98
99	60		28		178		67		63		8		6		32		.....		746		75		7		189		54		44		253		23		66		19		177		124		11		14		68		64		52		43		13		4730					99
100	60		23		166		43		63		8		6		26		.....		600		65		6		185		52		37		241		22		37		18		167		119		11		13		64		57		45		40		13		....	4061				100
101	0		5		12		24		0		0		0		6		.....		146		10		1		4		2		7		12		1		29		1		10		5		0		1		4		7		7		3		0		....	....		669			101
102	0.0		17.9		6.7		35.8		0.0		0.0		0.0		18.7		.....		19.6		13.3		14.3		2.1		3.7		15.9		4.7		4.4		43.9		5.3		5.6		4.0		0.0		7.2		5.9		10.9		13.2		7.0		0.0		....	....	....		14.1		102
	23		24		25		26		27		28		29		30		31		32		33		34		35		36		37		38		39		40		41		42		43		44		45		46		47		48		49		50						

Marginal Number	NAME OF COLLEGE	1 Alabama P	1 Alabama F	2 Alaska P	2 Alaska F	3 Arizona P	3 Arizona F	4 Arkansas P	4 Arkansas F	5 California P	5 California F	6 Colorado P	6 Colorado F	7 Connecticut P	7 Connecticut F	8 Delaware P	8 Delaware F	9 Dist. Columbia P	9 Dist. Columbia F	10 Florida P	10 Florida F	11 Georgia P	11 Georgia F	12 Idaho P	12 Idaho F	13 Illinois P	13 Illinois F	14 Indiana P	14 Indiana F	15 Iowa P	15 Iowa F	16 Kansas P	16 Kansas F	17 Kentucky P	17 Kentucky F	18 Louisiana P	18 Louisiana F	19 Maine P	19 Maine F	20 Maryland P	20 Maryland F	21 Massachusetts P	21 Massachusetts F	22 Michigan P	22 Michigan F	Marginal Number
	ALABAMA																																														
1	University of Alabama School of Medicine	13	0																	1	0																											1
	ARKANSAS																																														
2	University of Arkansas Medical Department							14	0																																							2
	CALIFORNIA																																														
3	College of Medical Evangelists									12	0							1	0																											3
4	College of Physicians and Surgeons, Los Angeles					2	0			50	0																																			4
5	College of Physicians and Surgs., San Francisco									6	3																																			5
6	Hahnemann Medical College of the Pacific.—H.									16	1																																			6
7	Leland Stanford Junior Univ. School of Medicine									20	0																																			7
8	Oakland College of Medicine and Surgery									4	0																																			8
9	University of California Medical School					1	0			25	0															1	0																			9
	COLORADO																																														
10	University of Colorado School of Medicine											20	0													1	0																			10
	CONNECTICUT																																													
11	Yale University School of Medicine													9	0																													1	0			11
	DISTRICT OF COLUMBIA																																														
12	Georgetown University School of Medicine													1	0			2	0																									1	0			12
13	George Washington University Medical School																	7	0																					1	0							13
14	Howard University School of Medicine													1	0																											2	0	0	1			14
	GEORGIA																																														
15	Emory University School of Medicine	7	2																	3	0	59	0																					1	0	1	0	15
16	University of Georgia Medical Department																					11	0																					1	0			16
	ILLINOIS																																														
17	Chicago College of Medicine and Surgery	1	0	1	0			1	0	1	0	1	0	0	1			1	0			3	0			155	34	4	0	1	0			2	0	2	1	0	1	1	0	1	4	3	0	17
18	Chicago Hospital College of Medicine																									15	8																			18
19	Hahnemann Medical College and Hospital—H.																					1	0			27	4					1	0											2	0	19
20	Jenner Medical College																									20	3																			20
21	Loyola University School of Medicine	1	0							1	1									0	1	2	0			77	13			2	0							1	0	1	1	1	1			21
22	Northwestern University Medical School																							1	0	28	1			2	0											1	0			22
23	Rush Medical College (University of Chicago)					3	0			4	0							1	0					2	0	90	0			3	0	1	0											1	0	23
24	University of Illinois College of Medicine					2	0			1	0															35	1			2	0													3	0	24
	INDIANA																																														
25	Indiana University School of Medicine											1	0									1	0					25	0																	25
	IOWA																																														
26	State University of Iowa College of Medicine																									1	0			19	0															26
27	State Univ. of Iowa Coll. of Homeo. Med.—H.																													1	0															27
	KANSAS																																														
28	University of Kansas School of Medicine																															14	0													28
	KENTUCKY																											4	0	1	0	1	0	39	2							1	0			29
	LOUISIANA																																														
30	Tulane University of Louisiana School of Med.	3	0							1	0	1	0							1	0	2	0									1	0			34	1									30
	MAINE																																														
31	Bowdoin Medical School													2	0			1	0																					8	0			1	1			31
	MARYLAND																																														
32	Johns Hopkins University Medical Department	2	0											3	0	1	0	1	0							2	0	2	0											38	2	5	0	3	0	32
33	Univ. of Maryland Sch. of Med. & Coll. of P. & S.													4	2	2	0	3	0	2	0					1	0													28	4	2	3			33
	MASSACHUSETTS																																														
34	Boston University School of Medicine—H.																																							3	0			26	3			34
35	College of Physicians and Surgeons, Boston																	0	1																					1	0	1	0	4	19			35
36	Medical School of Harvard University									2	0	1	0	4	1			1	0							2	0					1	0							3	0			59	0			36
37	Middlesex College of Medicine and Surgery																																										1	1			37
38	Tufts College Medical School									1	1			3	4					1	0	1	0																	6	0			69	4			38
	MICHIGAN																																														
39	Detroit College of Medicine and Surgery																																												50	2	39
40	University of Michigan Medical School																			1	0							1	0															1	0	48	1	40
41	University of Michigan Homeo. Med. School—H.																																												3	0	41
	MINNESOTA																																														
42	University of Minnesota Medical School																																														42
	MISSOURI																																														
43	Eclectic Medical University—E.							4	1															0	1																					43
44	Kansas City College of Medicine and Surgery—E.							21	6					3	0																																	44
45	National University of Arts and Sciences																							1	0	0	1																			45
46	St. Louis College of Physicians and Surgeons											1	1																																	46
47	St. Louis University School of Medicine																									3	0			1	0															47
48	Washington University Medical School																									1	0					1	0													48
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		

H. = Homeopathic; E. = Eclectic; P. = Passed; F. = Failed.

| Marginal Number | 23 Minnesota | | 24 Mississippi | | 25 Missouri | | 26 Montana | | 27 Nebraska | | 28 Nevada | | 29 New Hampshire | | 30 New Jersey | | 31 New Mexico | | 32 New York | | 33 North Carolina | | 34 North Dakota | | 35 Ohio | | 36 Oklahoma | | 37 Oregon | | 38 Pennsylvania | | 39 Rhode Island | | 40 South Carolina | | 41 South Dakota | | 42 Tennessee | | 43 Texas | | 44 Utah | | 45 Vermont | | 46 Virginia | | 47 Washington | | 48 West Virginia | | 49 Wisconsin | | 50 Wyoming | | Totals | Examined—Passed | Examined—Failed | Percentage of Failures | No. States Exam. in | Marginal Number |
|---|---|---

Marginal Number	NAME OF COLLEGE	1 Alabama P	1 Alabama F	2 Alaska P	2 Alaska F	3 Arizona P	3 Arizona F	4 Arkansas P	4 Arkansas F	5 California P	5 California F	6 Colorado P	6 Colorado F	7 Connecticut P	7 Connecticut F	8 Delaware P	8 Delaware F	9 Dist. Columbia P	9 Dist. Columbia F	10 Florida P	10 Florida F	11 Georgia P	11 Georgia F	12 Idaho P	12 Idaho F	13 Illinois P	13 Illinois F	14 Indiana P	14 Indiana F	15 Iowa P	15 Iowa F	16 Kansas P	16 Kansas F	17 Kentucky P	17 Kentucky F	18 Louisiana P	18 Louisiana F	19 Maine P	19 Maine F	20 Maryland P	20 Maryland F	21 Massachusetts P	21 Massachusetts F	22 Michigan P	22 Michigan F	Marginal Number
	NEBRASKA																																													
49	John A Creighton Medical College	..	..	..	..	..	..	..	..	0	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	49
50	Lincoln Medical College, Lincoln, Neb.—E.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	50
51	University of Nebraska College of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	51
	NEW YORK																																												
52	Albany Medical College	..	..	..	..	..	..	..	..	..	..	..	..	0	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	52
53	Columbia University College of Phys. & Surgs.	1	0	..	..	..	..	..	..	1	0	..	..	4	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	53
54	Cornell University Medical College	..	..	..	..	..	..	..	..	1	0	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	54
55	Fordham University School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	2	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	55
56	Long Island College Hospital	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	56
57	N. Y. Homeo. Med. Coll. and Flower Hosp.—H.	..	..	..	..	1	0	..	..	..	..	..	..	7	0	2	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	57
58	New York Med. Coll. and Hosp. for Women—H.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	58
59	Syracuse University College of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	59
60	University and Bellevue Hospital Med. Col.	..	..	..	..	..	..	..	..	..	..	..	..	2	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	1	0	..	..	..	..	1	0	60
61	University of Buffalo Department of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	61
	NORTH CAROLINA																																												
62	North Carolina Medical College	0	1	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	1	0	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	62
	OHIO																																												
63	Eclectic Medical College—E.	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	1	0	..	..	1	0	1	0	1	0	..	..	..	..	..	..	..	..	..	..	63
64	Ohio State University College of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	64
65	Ohio State University Coll. of Homeo. Med.—H.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	65
66	University of Cincinnati College of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	66
67	Western Reserve University School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	67
	OKLAHOMA																																												
68	University of Oklahoma School of Medicine	0	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	1	1	0	68
	OREGON																																												
69	University of Oregon Department of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	69
	PENNSYLVANIA																																												
70	Hahnemann Medical College and Hospital—H.	..	..	..	..	..	..	..	..	..	..	..	..	1	0	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	70
71	Jefferson Medical College	2	0	..	..	1	0	..	..	2	0	..	..	2	0	3	0	..	..	1	0	1	0	1	0	1	0	..	..	1	0	1	0	..	..	..	..	2	0	3	0	2	0	..	..	71
72	Medico-Chirurgical College of Philadelphia	..	..	..	..	..	..	..	..	..	..	..	..	1	1	2	0	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	0	..	..	72
73	Temple University Department of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	0	..	..	73
74	University of Pennsylvania School of Medicine	1	0	..	..	..	..	..	..	1	0	..	..	0	1	2	0	1	0	..	..	..	..	1	0	2	0	2	0	2	0	2	0	..	..	..	..	..	..	..	..	3	0	1	0	74
75	University of Pittsburgh School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	75
76	Woman's Medical College of Pennsylvania	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	0	1	0	76
	SOUTH CAROLINA																																												
77	Medical College of the State of South Carolina	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	77
	TENNESSEE																																												
78	Lincoln Memorial University Medical Department	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	1	0	..	..	2	3	..	..	..	..	..	..	1	0	1	..	78
79	Meharry Medical College	1	3	..	..	..	5	0	..	..	..	..	0	1	..	..	1	2	2	1	10	1	..	4	10	0	1	..	..	..	..	16	6	2	3	..	..	1	1	0	1	..	..	79
80	University of Tennessee College of Medicine	2	1	..	..	..	18	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	0	1	..	..	..	..	..	..	..	..	..	..	80
81	Univ. of West Tennessee Coll. of Med. and Surg.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	2	..	..	..	..	..	..	..	..	0	1	..	..	81
82	Vanderbilt University Medical Department	3	0	..	..	..	..	..	..	3	0	1	0	..	..	..	..	..	..	1	0	1	0	..	..	1	0	..	..	..	..	1	0	6	0	1	0	..	..	..	..	..	..	..	..	82
	TEXAS																																												
83	Baylor University College of Medicine	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	83
84	Fort Worth School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	1	..	..	..	..	..	..	..	..	84
85	University of Texas Department of Medicine	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	85
	VERMONT																																												
86	University of Vermont College of Medicine	..	..	..	..	..	..	..	..	1	0	..	..	6	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	0	..	..	86
	VIRGINIA																																												
87	Medical College of Virginia	..	..	..	..	..	..	..	..	0	1	..	..	0	1	..	..	..	..	1	0	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	1	..	..	87
88	University of Virginia Department of Medicine	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	88
	WISCONSIN																																												
89	Marquette University School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	89
	CANADA																																												
90	Laval University Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	90
91	McGill University Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	2	0	91
92	Queen's University Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	92
93	University of Manitoba, Manitoba Medical College	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	93
94	University of Toronto Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	94
95	Western University Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	95
96	Foreign Colleges	..	..	..	..	..	..	..	..	3	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	96
97	Miscellaneous Medical Colleges	2	8	..	..	..	..	2	1	0	2	..	..	1	1	..	..	0	1	2	1	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	1	2	2	..	..	97
98	Totals by States	57		1		12		73		166		31		76		14		26		23		98		8		547		39		29		25		78		47		28		90		230		123		98
99	Totals—Examined—Passed	41		1		12		65		156		30		59		14		22		20		96		7		470		38		39		23		67		40		27		80		196		120		99
100	Totals—Examined—Failed	16		0		0		8		10		1		17		0		4		3		2		1		77		1		0		2		11		7		1		10		34		3		100
101	Percentage of Failures	28.1		0.0		0.0		11.0		6.0		3.2		22.4		0.0		15.4		13.0		2.0		12.5		14.1		2.6		0.0		8.0		14.1		14.9		3.6		11.1		14.8		2.4		101
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		

H. = Homeopathic; E. = Eclectic; P. = Passed; F. = Failed.

| Marginal Number | 23 Minnesota | | 24 Mississippi | | 25 Missouri | | 26 Montana | | 27 Nebraska | | 28 Nevada | | 29 New Hampshire | | 30 New Jersey | | 31 New Mexico | | 32 New York | | 33 North Carolina | | 34 North Dakota | | 35 Ohio | | 36 Oklahoma | | 37 Oregon | | 38 Pennsylvania | | 39 Rhode Island | | 40 South Carolina | | 41 South Dakota | | 42 Tennessee | | 43 Texas | | 44 Utah | | 45 Vermont | | 46 Virginia | | 47 Washington | | 48 West Virginia | | 49 Wisconsin | | 50 Wyoming | | Totals | Examined—Passed | Examined—Failed | Percentage of Failures | No. States Exam. in | Marginal Number |
|---|---|---

Marginal Number	NAME OF COLLEGE	Graduates of All Years					Graduates of 1913–1917					Graduates of 1912 and Previous					Graduates of 1917					Marginal Number
		Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	
	ALABAMA																					
1	University of Alabama School of Medicine	18	18	0	0.0	5	17	17	0	0.0	4	1	1	0	0.0	1	14	14	0	0.0	2	
	ARKANSAS																					
2	University of Arkansas Medical Department	18	17	1	5.6	2	14	14	0	0.0	1	4	3	1	25.0	2	14	14	0	0.0	1	2
	CALIFORNIA																					
3	College of Medical Evangelists	13	13	0	0.0	2	13	13	0	0.0	2	...	...	...	.....	..	11	11	0	0.0	1	3
4	College of Physicians and Surgeons, Los Angeles	55	55	0	0.0	4	55	55	0	0.0	4	...	...	...	.....	..	52	52	0	0.0	4	4
5	College of Physicians and Surgs., San Francisco	13	10	3	23.1	3	12	9	3	25.0	2	1	1	0	0.0	1	8	5	3	37.5	1	5
6	Hahnemann Medical College of the Pacific.—H.	21	20	1	4.8	4	21	20	1	4.8	4	...	...	...	.....	..	17	16	1	5.9	2	6
7	Leland Stanford Junior Univ. School of Medicine	22	20	2	9.1	2	22	20	2	9.1	2	...	...	...	.....	..	16	16	0	0.0	1	7
8	Oakland College of Medicine and Surgery	4	4	0	0.0	1	4	4	0	0.0	1	...	...	...	.....	..	4	4	0	0.0	1	8
9	University of California Medical School	27	27	0	0.0	3	27	27	0	0.0	3	...	...	...	.....	..	25	25	0	0.0	1	9
	COLORADO																					
10	University of Colorado School of Medicine	27	26	1	3.7	7	26	26	0	0.0	6	1	0	1	100.0	1	22	22	0	0.0	4	10
	CONNECTICUT																					
11	Yale University School of Medicine	12	12	0	0.0	4	12	12	0	0.0	4	...	...	...	.....	..	6	6	0	0.0	1	11
	DISTRICT OF COLUMBIA																					
12	Georgetown University School of Medicine	5	5	0	0.0	4	4	4	0	0.0	3	1	1	0	0.0	1	1	1	0	0.0	1	12
13	George Washington University Medical School	22	21	1	4.5	9	16	15	1	6.3	5	6	6	0	0.0	6	5	5	0	0.0	2	13
14	Howard University School of Medicine	19	17	2	10.5	11	19	17	2	10.5	11	...	...	...	.....	..	6	6	0	0.0	5	14
	GEORGIA																					
15	Emory University School of Medicine	89	82	7	7.9	10	89	82	7	7.9	10	...	...	...	.....	..	70	68	2	2.9	6	15
16	University of Georgia Medical Department	16	14	2	12.5	4	16	14	2	12.5	4	...	...	...	.....	..	12	12	0	0.0	2	16
	ILLINOIS																					
17	Chicago College of Medicine and Surgery	266	219	47	17.7	30	261	215	46	17.6	29	5	4	1	20.0	5	169	148	21	12.4	13	17
18	Chicago Hospital College of Medicine	23	15	8	34.8	1	23	15	8	34.8	1	...	...	...	.....	..	10	10	0	0.0	1	18
19	Hahnemann Medical College and Hospital—H.	44	40	4	9.1	10	41	37	4	9.8	8	3	3	0	0.0	3	33	31	2	6.1	4	19
20	Jenner Medical College	27	22	5	18.5	2	24	21	3	12.5	2	3	1	2	66.7	1	14	14	0	0.0	1	20
21	Loyola University School of Medicine	127	105	22	17.3	20	122	103	19	15.6	19	5	2	3	60.0	3	57	55	2	3.5	7	21
22	Northwestern University Medical School	49	48	1	2.0	14	41	40	1	2.4	10	8	8	0	0.0	7	32	31	1	3.1	4	22
23	Rush Medical College (University of Chicago)	163	159	4	2.5	24	146	145	1	0.7	21	17	14	3	17.7	11	94	94	0	0.0	9	23
24	University of Illinois College of Medicine	73	70	3	4.1	17	64	62	2	3.1	15	9	8	1	11.1	7	40	39	1	2.5	6	24
	INDIANA																					
25	Indiana University School of Medicine	30	30	0	0.0	6	28	28	0	0.0	4	2	2	0	0.0	2	27	27	0	0.0	3	25
	IOWA																					
26	State University of Iowa College of Medicine	24	24	0	0.0	5	21	21	0	0.0	3	3	3	0	0.0	2	20	20	0	0.0	2	26
27	State Univ. of Iowa Coll. of Homeo. Med.—H.	2	2	0	0.0	2	1	1	0	0.0	1	1	1	0	0.0	1	1	1	0	0.0	1	27
	KANSAS																					
28	University of Kansas School of Medicine	15	15	0	0.0	2	15	15	0	0.0	2	...	...	...	.....	..	14	14	0	0.0	2	28
	KENTUCKY																					
29	University of Louisville Medical Department	85	72	13	15.3	23	60	58	2	3.3	12	25	14	11	44.0	14	50	48	2	4.0	9	29
	LOUISIANA																					
30	Tulane University of Louisiana School of Med.	68	65	3	4.4	12	61	59	2	3.3	12	7	6	1	14.3	4	47	46	1	2.1	7	30
	MAINE																					
31	Bowdoin Medical School	15	14	1	6.7	5	13	12	1	7.7	4	2	2	0	0.0	2	11	10	1	9.1	3	31
	MARYLAND																					
32	Johns Hopkins University Medical Department	97	93	4	4.1	21	92	88	4	4.3	20	5	5	0	0.0	4	49	46	3	6.1	9	32
33	Univ. of Maryland Sch. of Med. & Coll. of P. & S.	109	88	21	19.3	22	98	81	17	17.3	21	11	7	4	36.3	6	43	37	6	14.0	12	33
	MASSACHUSETTS																					
34	Boston University School of Medicine—H.	44	37	7	15.9	10	37	33	4	10.8	7	7	4	3	42.9	6	29	27	2	6.9	5	34
35	College of Physicians and Surgeons, Boston	18	6	12	66.7	4	17	6	11	64.7	4	1	0	1	100.0	1	7	4	3	42.9	1	35
36	Medical School of Harvard University	106	103	3	2.8	20	99	97	2	2.0	18	7	6	1	14.3	5	52	52	0	0.0	12	36
37	Middlesex College of Medicine and Surgery	2	1	1	50.0	1	2	1	1	50.0	1	...	...	...	.....	..	.....	.....	...	.....	..	37
38	Tufts College Medical School	113	96	17	15.0	11	100	88	12	12.0	10	13	8	5	38.4	5	77	72	5	6.5	8	38
	MICHIGAN																					
39	Detroit College of Medicine and Surgery	55	52	3	5.5	4	54	52	2	3.7	3	1	0	1	100.0	1	52	50	2	3.8	2	39
40	University of Michigan Medical School	70	64	6	8.6	12	59	56	3	5.1	7	11	8	3	27.3	8	50	48	2	4.0	3	40
41	University of Michigan Homeo. Med. School—H.	6	4	2	33.3	2	6	4	2	33.3	2	...	...	...	.....	..	3	3	0	0.0	1	41
	MINNESOTA																					
42	University of Minnesota Medical School	39	38	1	2.6	7	36	36	0	0.0	5	3	2	1	33.3	3	31	31	0	0.0	1	42
	MISSOURI																					
43	Eclectic Medical University—E.	6	4	2	33.3	2	6	4	2	33.3	2	...	...	...	.....	..	7	5	2	28.6	3	43
44	Kansas City College of Medicine and Surgery—E.	30	24	6	20.0	2	30	24	6	20.0	2	...	...	...	.....	..	30	24	6	20.0	2	44
45	National University of Arts and Sciences	46	45	1	2.2	5	44	43	1	2.3	5	2	2	0	0.0	1	38	38	0	0.0	2	45
46	St. Louis College of Physicians and Surgeons	23	16	7	30.4	9	15	12	3	20.0	6	8	4	4	50.0	4	5	4	1	20.0	2	46
47	St. Louis University School of Medicine	49	48	1	2.0	9	45	44	1	2.2	6	4	4	0	0.0	4	41	40	1	2.4	4	47
48	Washington University Medical School	31	31	0	0.0	11	24	24	0	0.0	5	7	7	0	0.0	6	20	20	0	0.0	3	48

H. = Homeopathic; E. = Eclectic.

Marginal Number	NAME OF COLLEGE	Graduates of All Years					Graduates of 1913-1917					Graduates of 1912 and Previous					Graduates of 1917					Marginal Number
		Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	
	NEBRASKA																					
49	John A Creighton Medical College	52	48	4	7.7	10	46	42	4	8.7	8	6	6	0	0.0	4	38	36	2	5.3	5	49
50	Lincoln Medical College, Lincoln, Neb.—E.	7	7	0	0.0	2	6	6	0	0.0	2	1	1	0	0.0	1	5	5	0	0.0	2	50
51	University of Nebraska College of Medicine	18	18	0	0.0	4	18	18	0	0.0	4	...	...	...	....	..	15	15	0	0.0	1	51
	NEW YORK																					
52	Albany Medical College	63	52	11	17.4	3	57	46	11	19.3	2	6	6	0	0.0	3	37	32	5	13.5	1	52
53	Columbia University College of Phys. & Surgs.	111	96	15	13.5	12	105	91	14	13.3	8	6	5	1	16.7	6	58	50	8	13.8	3	53
54	Cornell University Medical College	26	26	0	0.0	6	25	25	0	0.0	5	1	1	0	0.0	1	13	13	0	0.0	1	54
55	Fordham University School of Medicine	58	51	7	12.0	3	57	50	7	12.3	3	1	1	0	0.0	1	33	29	4	12.1	2	55
56	Long Island College Hospital	79	75	4	5.1	8	73	69	4	5.5	2	6	6	0	0.0	6	64	62	2	3.1	1	56
57	N. Y. Homeo. Med. Coll. and Flower Hosp.—H.	105	67	38	36.2	8	103	67	36	35.0	7	2	0	2	100.0	2	39	28	11	28.3	3	57
58	New York Med. Coll. and Hosp. for Women—H.	14	14	0	0.0	2	14	14	0	0.0	2	...	...	...	....	..	7	7	0	0.0	1	58
59	Syracuse University College of Medicine	33	33	0	0.0	5	32	32	0	0.0	4	1	1	0	0.0	1	25	25	0	0.0	1	59
60	University and Bellevue Hospital Med. Coll.	77	72	5	6.5	8	75	70	5	6.7	7	2	2	0	0.0	2	53	50	3	5.7	1	60
61	University of Buffalo Department of Medicine	65	59	6	9.2	4	64	58	6	9.4	3	1	1	0	0.0	1	55	50	5	9.1	1	61
	NORTH CAROLINA																					
62	North Carolina Medical College	22	20	2	4.5	7	18	17	1	5.6	6	4	3	1	25.0	4	16	15	1	6.3	6	62
	OHIO																					
63	Eclectic Medical College—E.	36	34	2	5.6	12	33	31	2	6.1	9	3	3	0	0.0	3	29	28	1	3.4	7	63
64	Ohio State University College of Medicine	70	70	0	0.0	4	70	70	0	0.0	4	...	...	...	....	..	69	69	0	0.0	4	64
65	Ohio State University Coll. of Homeo. Med.—H.	8	8	0	0.0	1	8	8	0	0.0	1	...	...	...	....	..	8	8	0	0.0	1	65
66	University of Cincinnati College of Medicine	21	20	1	4.8	6	18	18	0	0.0	3	3	2	1	33.3	3	14	14	0	0.0	2	66
67	Western Reserve University School of Medicine	38	38	0	0.0	6	36	36	0	0.0	4	2	2	0	0.0	2	33	33	0	0.0	3	67
	OKLAHOMA																					
68	University of Oklahoma School of Medicine	36	31	5	13.9	8	35	30	5	14.3	7	1	1	0	0.0	1	24	24	0	0.0	1	68
	OREGON																					
69	University of Oregon Department of Medicine	14	14	0	0.0	4	12	12	0	0.0	3	2	2	0	0.0	2	7	7	0	0.0	3	69
	PENNSYLVANIA																					
70	Hahnemann Medical College and Hospital—H.	23	20	3	13.0	6	23	20	3	13.0	6	...	...	...	....	..	7	7	0	0.0	4	70
71	Jefferson Medical College	159	147	12	7.5	31	140	134	6	4.3	28	19	13	6	31.6	12	27	26	1	3.7	11	71
72	Medico-Chirurgical College of Philadelphia	83	77	6	7.2	11	77	74	3	3.9	9	6	3	3	50.0	5	....	....	...	....	..	72
73	Temple University Department of Medicine	21	21	0	0.0	5	21	21	0	0.0	5	...	...	...	....	..	5	5	0	0.0	4	73
74	University of Pennsylvania School of Medicine	78	74	4	5.1	26	65	63	2	3.1	23	13	11	2	15.4	9	32	30	2	6.2	15	74
75	University of Pittsburgh School of Medicine	24	24	0	0.0	2	24	24	0	0.0	2	...	...	...	....	..	....	....	...	....	..	75
76	Woman's Medical College of Pennsylvania	28	26	2	7.1	10	24	22	2	8.3	6	4	4	0	0.0	4	6	6	0	0.0	3	76
	SOUTH CAROLINA																					
77	Medical College of the State of South Carolina	26	22	4	15.4	4	23	20	3	13.0	2	3	2	1	33.3	3	22	19	3	13.6	2	77
	TENNESSEE																					
78	Lincoln Memorial University Medical Department	17	13	4	23.5	6	16	13	3	18.7	6	1	0	1	100.0	1	7	5	2	28.6	2	78
79	Meharry Medical College	188	131	57	30.3	22	177	127	50	28.2	22	11	4	7	63.6	9	111	96	15	13.5	15	79
80	University of Tennessee College of Medicine	59	54	5	8.5	9	57	54	3	5.3	7	2	0	2	100.0	2	49	49	0	0.0	5	80
81	Univ. of West Tennessee Coll. of Med. and Surg.	21	9	12	57.1	5	19	9	10	52.6	5	2	0	2	100.0	1	3	2	1	33.3	1	81
82	Vanderbilt University Medical Department	97	95	2	2.1	18	92	91	1	1.1	16	5	4	1	20.0	5	74	74	0	0.0	10	82
	TEXAS																					
83	Baylor University College of Medicine	19	18	1	5.3	6	17	16	1	5.9	5	2	2	0	0.0	2	10	9	1	10.0	1	83
84	Fort Worth School of Medicine	17	16	1	5.9	3	17	16	1	5.9	3	...	...	...	....	..	17	16	1	5.9	2	84
85	University of Texas Department of Medicine	47	47	0	0.0	4	46	46	0	0.0	3	1	1	0	0.0	1	43	43	0	0.0	2	85
	VERMONT																					
86	University of Vermont College of Medicine	37	31	6	16.2	8	28	24	4	14.3	6	9	7	2	22.2	6	12	10	2	16.7	4	86
	VIRGINIA																					
87	Medical College of Virginia	93	80	13	14.0	13	90	79	11	12.2	13	3	1	2	66.7	3	78	70	8	10.3	10	87
88	University of Virginia Department of Medicine	16	16	0	0.0	6	15	15	0	0.0	5	1	1	0	0.0	1	12	12	0	0.0	3	88
	WISCONSIN																					
89	Marquette University School of Medicine	11	11	0	0.0	4	9	9	0	0.0	2	2	2	0	0.0	2	7	7	0	0.0	1	89
	CANADA																					
90	Laval University Faculty of Medicine	1	1	0	0.0	1	....	....	....	....	..	1	1	0	0.0	1	....	....	...	....	..	90
91	McGill University Faculty of Medicine	13	11	2	15.4	8	8	8	0	0.0	6	5	3	2	40.0	4	2	2	0	0.0	2	91
92	Queen's University Faculty of Medicine	10	5	5	50.0	2	7	3	4	57.1	2	3	2	1	33.3	1	1	0	1	100.0	1	92
93	University of Manitoba, Manitoba Medical College	1	1	0	0.0	1	1	1	0	0.0	1	...	...	...	....	..	....	....	...	....	..	93
94	University of Toronto Faculty of Medicine	8	7	1	12.5	4	1	1	0	0.0	1	7	6	1	14.3	3	1	1	0	0.0	1	94
95	Western University Faculty of Medicine	1	1	0	0.0	1	....	....	....	....	..	1	1	0	0.0	1	....	....	...	....	..	95
96	Foreign Colleges	79	42	37	46.8	16	16	12	4	25.0	6	63	30	33	52.3	16	1	1	0	0.0	1	96
97	Miscellaneous Medical Colleges	213	124	89	42.2	39	45	23	22	48.9	17	168	101	67	39.9	38	....	....	...	....	..	97
98	Nondescript colleges	151	73	78	51.7	1	....	....	....	....	..	...	...	...	....	..	....	....	...	....	..	98
	Totals	4730	4061	669	14.1	..	4015	3609	406	10.1	..	564	379	185	32.6	..	2605	2456	149	5.7		

TABLE D.—NONRECOGNITION OF MEDICAL COLLEGES

This Table, Based on Official Reports, Shows the Numerous Pitfalls to be Avoided by Prospective Medical Students

Colleges marked (x) have been reported as not recognized by the states in the columns of which the letter appears.

| Marginal Number | COLLEGE | Classification by Council on Medical Education † | 1 Alabama | 2 Alaska | 3 Arizona | 4 Arkansas | 5 California | 6 Colorado | 7 Connecticut | 8 Delaware | 9 Dist. of Columbia | 10 Florida | 11 Georgia | 12 Idaho | 13 Illinois | 14 Indiana | 15 Iowa | 16 Kansas | 17 Kentucky | 18 Louisiana | 19 Maine | 20 Maryland | 21 Massachusetts | 22 Michigan | 23 Minnesota | 24 Mississippi | 25 Missouri | 26 Montana | 27 Nebraska | 28 Nevada | 29 New Hampshire | 30 New Jersey | 31 New Mexico | 32 New York | 33 North Carolina | 34 North Dakota | 35 Ohio | 36 Oklahoma | 37 Oregon | 38 Pennsylvania | 39 Rhode Island | 40 South Carolina | 41 South Dakota | 42 Tennessee | 43 Texas | 44 Utah | 45 Vermont | 46 Virginia | 47 Washington | 48 West Virginia | 49 Wisconsin | 50 Wyoming | Reported Non-Recognition by State Licensing Boards: No. of State Boards reporting full recognition | No. of State Boards reporting college not recognized | Percentage of State Boards reporting full recognition | Marginal Number |
|---|---|---

| | | |

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increased reciprocity relations are established. As a rule, the states which do not have reciprocal relations with other states (as Florida, Montana, Massachusetts, Oregon and Washington, see Table J) examined the largest numbers of old practitioners.

GRADUATES OF 1917 EXAMINED DURING 1917

Table C also gives the results for the graduates of 1917 who were examined during the year by the state boards, and shows that 2,605, or 56.8 per cent., of all candidates examined during the year graduated in 1917, including three who graduated from Canadian medical colleges. Educational statistics show that the medical colleges of the United States graduated 3,379 students last year; therefore, 74.1 per cent. of all graduates in 1917 took examinations for license during that year. In some of the states, graduates in medicine are allowed to serve as hospital interns without first becoming licensed practitioners, which doubtless accounts for some of the remaining 25.9 per cent. Of the 1917 graduates examined, 149, or 5.7 per cent., failed. Of the 1916 graduates examined in 1916, 7.4 per cent. failed; of the 1915 graduates examined in 1915, 7.5 per cent. failed, and of the 1914 graduates examined in 1914, 12.7 per cent. failed. A steady improvement in recent years in the qualifications of medical graduates is apparent from these figures.

TABLE E.—COLLEGES GROUPED BY STATES
Showing the Number Examined and Percentage of Failures

All Colleges of	Graduates: Of All Years		Of 1913 to 1917		Of 1912 & Prev.		Of 1917		State Rank According to the Number Examined	Rank According to Successes at Examinations
	No. Examined	Per Cent. Failed	No. Examined	Per Cent. Failed	No. Examined	Per Cent. Failed	No. Examined	Per Cent. Failed		
Alabama	18	0.0	17	0.0	1	0.0	14	0.0	24	1
Arkansas	18	5.6	14	0.0	4	25.0	14	0.0	24	10
California	155	4.8	154	3.9	1	0.0	133	3.0	9	8
Colorado	27	3.7	26	0.0	1	100.0	22	0.0	21	5
Connecticut	12	0.0	12	0.0	.....	.....	6	0.0	27	1
Dist. of Columbia	46	6.5	39	7.7	7	0.0	12	0.0	16	11
Georgia	105	8.6	105	8.6	.....	.....	82	2.4	12	14
Illinois	772	12.2	722	11.6	50	20.0	449	6.0	1	17
Indiana	30	0.0	28	0.0	2	0.0	27	0.0	20	1
Iowa	26	0.0	22	0.0	4	0.0	21	0.0	22	1
Kansas	15	0.0	15	0.0	.....	.....	14	0.0	25	1
Kentucky	85	15.7	60	3.4	25	45.8	50	4.0	13	22
Louisiana	68	4.4	61	3.3	7	14.3	47	2.1	16	6
Maine	15	6.7	13	7.7	2	0.0	11	10.0	25	12
Maryland	206	12.2	190	11.1	16	26.7	92	9.8	6	17
Massachusetts	283	14.1	255	11.7	28	35.7	165	6.1	5	20
Michigan	131	8.4	119	5.9	12	33.3	105	3.8	10	13
Minnesota	39	2.6	36	0.0	3	33.3	31	0.0	17	4
Missouri	185	9.2	164	7.9	21	19.0	141	7.1	7	15
Nebraska	77	5.2	70	5.7	7	0.0	58	3.4	15	9
New York	631	13.6	605	13.7	26	11.5	384	9.8	2	18
North Carolina	22	4.5	18	5.6	4	25.0	16	6.3	23	7
Ohio	173	1.7	165	1.2	8	12.5	153	0.7	8	2
Oklahoma	36	13.9	35	14.3	1	0.0	24	0.0	19	19
Oregon	14	0.0	12	0.0	2	0.0	7	0.0	26	1
Pennsylvania	416	6.5	374	4.2	42	26.9	77	3.9	3	11
South Carolina	26	15.4	23	13.0	3	33.3	22	13.6	22	21
Tennessee	382	20.6	361	18.5	21	57.1	244	7.3	4	24
Texas	83	2.4	80	2.5	3	0.0	70	2.9	14	3
Vermont	37	16.2	28	14.3	9	22.2	12	16.7	18	23
Virginia	109	11.9	105	10.5	4	50.0	90	8.9	11	16
Wisconsin	11	0.0	9	0.0	2	0.0	7	0.0	28	1
Total Ex. in 1917	4253	10.7	3937	9.5	316	25.6	2600	5.6		

This table gives data relating to the group of colleges in each state. For example, it shows that, of all the medical schools in Massachusetts, 283 graduates of various years were examined by state boards during 1917, and of this number, 14.1 per cent. failed. Of the 255 who graduated in recent years (1913 to 1917 inclusive), 11.7 per cent. failed; of the 28 who graduated previous to 1913, 35.7 per cent. failed, and of the 165 graduates of 1917, 6.1 per cent. failed.

The ninth column gives the rank of each state group of colleges according to the number of graduates examined. The Illinois group of colleges leads, having 772 graduates examined by state boards during 1917, followed by New York with 631, Pennsylvania with 416, Tennessee with 382, Massachusetts with 283, and Maryland with 206.

The last column gives the rank of each state group of colleges according to the success of the graduates at the examinations. It is interesting to compare the figures of these two last columns. While the Illinois group ranks first according to the number examined it ranks seventeenth in the success of its graduates at the examinations. While Tennessee ranks fourth as to the number examined, it ranks as the twenty-fourth in the success of its graduates at the examinations.

NONRECOGNITION OF MEDICAL COLLEGES

Table D shows for each college, from official reports, the states in which its diplomas are not given unqualified recognition. Nonrecognition is expressed by different terms in different states. Some boards list colleges as "in good standing" or "not in good standing"; some give them as "reputable" or "not reputable"; in New York full recognition is given only to colleges which are "registered," and in Michigan colleges are divided into groups, only those of Group 1 having full recognition. There are thirty states which do not register graduates of a medical college unless such graduates had completed at least two years of collegiate work prior to entering on the study of medicine. This table also shows the latest rating given to each college by the Council on Medical Education.

TABLE 1.—RECOGNITION OF MEDICAL COLLEGES (BASED ON TABLE D)

	Number of Colleges
Recognized by all state boards	55
Not recognized by 1 to 3 state boards	14
Not recognized by 8 to 24 state boards	13
Not recognized by 25 to 37 state boards	14
Total	96

From the point of view of the prospective student who may be selecting a medical college, the facts in Table D are of extreme importance. There are 55 medical colleges now having complete recognition in all states. There are 14 others for which the few instances of nonrecognition are due to certain technicalities in state board requirements. If the student gets his medical training in one of the remaining 27 colleges, he will find on graduation that his diploma is not recognized in from 8 to 37 states!

Without the information published in Table D, these state board statistics would be not merely incomplete—*they would be actually misleading.* For example, 30 graduates of the Kansas City (Mo.) College of Medicine and Surgery were examined in 1917. Of these, 27 (90 per cent.) were examined by the Arkansas Board of *Eclectic* Medical Examiners, and 3 were examined elsewhere, and 6, or 20 per cent., failed. Accordingly, this college would appear to belong among the average grade medical schools of the country. How different the picture, however, when the facts are known, as set forth in Table D, that this college is reported as not recognized *in its home state* and in 31 other states, and that for its very existence it depends on the acceptance of its graduates by the sectarian boards of Arkansas and Connecticut.

TABLE 2.—SOURCE OF CANDIDATES REGISTERED BY EXAMINATION

Graduates of	1910		1917	
	Number	Per Cent.	Number	Per Cent.
Class A medical colleges	3,870	67.7	2,237	69.6
Class B medical colleges	977	17.1	813	20.0
Class C medical colleges	292	5.1	255	6.3
Miscellaneous medical colleges	311	5.5	124	3.1
Foreign medical colleges	70	1.2	42	1.0
Undergraduates	192	3.4	....	....
Totals	5,712	100	4,061	100

During the five years this table has been published, the percentages of fully recognized colleges were, respectively, 29.0, 32.3, 43.7, 65.6 and 57.3. This shows a decided improvement in the medical colleges. Forty state licensing boards, to some extent at least, are utilizing their legal power to refuse recognition to medical colleges which do not meet the requirements in the respective states. In the other ten

states, however, and in the District of Columbia, this table indicates that either the practice acts do not give the boards authority to enforce a requirement of reasonable standards, or else the boards are not exercising that authority. It is evident that if the graduates of low-standard medical colleges are not eligible for license in the majority of states, they will flock to the other ten which still grant them recognition. These ten states—Arizona, California, Idaho, Massachusetts, Nevada, Oregon, Tennessee, Utah, Washington and Wyoming—and the District of Columbia, therefore, are literally the dumping ground for the output of low-grade medical colleges, and will remain so until the licensing boards obtain the needed legal powers, or until the boards having the authority take action in the matter. Arkansas, Connecticut and Florida are also registering through their separate sectarian licensing boards graduates of medical colleges not recognized in the majority of other states.

Incidentally it should be stated that only such drafted medical students as are enrolled in "well recognized" medical colleges are permitted by the War Department to enter the Enlisted Reserve Corps and thereby be permitted to complete their medical training, and only those medical schools are considered as "well recognized" which are recognized by the majority of state licensing boards. It is evident, therefore, that no medical school shown in Table D will be considered as well recognized by the War Department if it is recognized by less than 50 per cent. of the state licensing boards.

TABLE 3.—FAILURE PERCENTAGES ACCORDING TO SOURCE OF APPLICANTS

Graduates of Medical Colleges in	1910				1917			
	Examined	Passed	Failed	Per Cent. Failed	Examined	Passed	Failed	Per Cent. Failed
Class A	4,318	3,870	448	10.4	3,046	2,827	219	7.2
Class B	1,268	977	291	22.9	997	813	184	18.4
Class C	479	292	187	39.0	395	255	140	35.4*
Miscellaneous	478	311	167	34.9	213	124	89	41.7
Foreign	108	70	38	35.2	79	42	37	46.8
Undergraduates	353	192	161	45.6	.....	.....	.....	.....

* Class C colleges at present, as a rule, are not recognized in from 27 to 37 states. The percentage, therefore, is the result of examinations by partisan boards and in states where the boards do not have, or are not using, the authority to refuse recognition.

SOURCE OF CANDIDATES REGISTERED BY EXAMINATION

Of the 4,061 physicians registered by *examination* in 1917, 2,827, or 69.6 per cent., graduated from Class A medical colleges; 813, or 20.0 per cent., were from Class B medical colleges; and 255,[1] or 6.3 per cent., were from Class C medical

1. Of this number, 73 were graduates of osteopathic colleges who were licensed in California as "physicians and surgeons."

TABLE F.—COLLEGES HAVING FIFTY OR MORE EXAMINED

TABLE SHOWS TOTAL NUMBER EXAMINED, TOTAL NUMBER PASSED, TOTAL NUMBER FAILED, PERCENTAGE OF FAILURES AND NUMBER OF STATES IN WHICH EACH COLLEGE HAD REPRESENTATIVES

COLLEGE	Graduates of All Years					Graduates of 1913–1917					Graduates of 1912 and Previous					Graduates of 1917					Marginal Number, Table A
	No. Examined	No. Passed	No. Failed	Per Cent. Failed	No. of States	No. Examined	No. Passed	No. Failed	Per Cent. Failed	No. of States	No. Examined	No. Passed	No. Failed	Per Cent. Failed	No. of States	No. Examined	No. Passed	No. Failed	Per Cent. Failed	No. of States	
Chicago College of Medicine and Surgery	266	219	47	17.7	30	261	215	46	17.6	29	5	4	1	20.0	5	169	148	21	12.4	13	17
Meharry Medical College	188	131	57	30.3	22	177	127	50	28.2	22	11	4	7	63.6	9	111	96	15	13.5	15	79
Rush Medical College	163	159	4	2.5	23	146	145	1	0.7	21	17	14	3	17.7	11	94	94	0	0.0	9	23
Jefferson Medical College	158	147	12	7.5	31	140	134	6	4.3	28	19	13	6	31.6	12	27	26	1	3.7	11	71
Loyola University School of Medicine	127	105	22	17.3	20	122	103	19	15.6	19	5	2	3	60.0	3	57	55	2	3.5	7	21
Tufts College Medical School	113	96	17	15.0	11	100	88	12	12.0	10	13	8	5	38.4	5	77	72	5	6.5	8	38
Columbia University College of Phys. and Surgs.	111	96	15	13.5	12	105	91	14	13.3	8	6	5	1	16.7	6	58	50	8	13.8	3	53
University of Maryland School of Medicine	109	88	21	19.3	22	98	81	17	17.3	21	11	7	4	36.3	6	43	37	6	14.0	12	33
Medical School of Harvard University	106	103	3	2.8	20	99	97	2	2.0	18	7	6	1	14.3	5	52	52	0	0.0	12	36
N. Y. Homeo. Med. Coll. and Flower Hospital	105	67	38	36.2	8	103	67	36	35.0	7	2	0	2	100.0	2	39	28	11	28.3	3	57
Johns Hopkins University Medical Department	97	93	4	4.1	21	92	88	4	4.3	20	5	5	0	0.0	4	49	46	3	6.1	9	32
Vanderbilt University Medical Department	97	95	2	2.1	18	92	91	1	1.1	16	5	4	1	20.0	5	74	74	0	0.0	10	82
Medical College of Virginia	93	80	13	14.0	13	90	79	11	12.2	13	3	1	2	66.7	3	78	70	8	10.3	10	87
Atlanta Medical College	89	82	7	7.9	10	89	82	7	7.9	10	.....	.....	.....	.....	.....	70	68	2	2.9	6	15
University of Louisville Medical Department	85	72	13	15.3	22	60	58	2	3.3	12	25	14	11	44.0	14	50	48	2	4.0	9	29
Medico-Chirurgical College of Philadelphia	83	77	6	7.2	11	77	74	3	3.9	9	6	3	3	50.0	5	.....	.....	.....	.....	.....	72
Long Island College Hospital	79	75	4	5.1	8	73	69	4	5.5	2	6	6	0	0.0	6	64	62	2	3.1	1	56
University of Pennsylvania School of Medicine	78	74	4	5.1	26	65	63	2	3.1	23	13	11	2	15.4	9	32	30	2	6.2	15	74
University and Bellevue Hospital Med. College	77	72	5	6.5	8	75	70	5	6.7	7	2	2	0	0.0	2	53	50	3	5.7	1	60
University of Illinois College of Medicine	73	70	3	4.1	17	64	62	2	3.1	15	9	8	1	11.1	7	40	39	1	2.5	6	24
Ohio State University College of Medicine	70	70	0	0.0	4	70	70	0	0.0	4	.....	.....	.....	.....	.....	69	69	0	0.0	4	64
University of Michigan Medical School	70	64	6	8.6	12	59	56	3	5.1	7	11	8	3	27.3	8	59	48	2	4.0	3	40
Tulane University of Louisiana School of Med.	68	65	3	4.4	12	61	59	2	3.3	12	7	6	1	14.3	4	47	46	1	2.1	7	30
University of Buffalo Department of Medicine	65	59	6	9.2	4	64	58	6	9.4	3	1	1	0	0.0	1	55	50	5	9.1	1	61
Albany Medical College	63	52	11	17.4	3	57	46	11	19.3	2	6	6	0	0.0	3	37	32	5	13.5	1	52
University of Tennessee College of Medicine	59	54	5	8.5	9	57	54	3	5.3	7	2	0	2	100.0	2	49	49	0	0.0	5	80
Fordham University School of Medicine	58	51	7	12.0	3	57	50	7	12.3	3	1	1	0	0.0	1	33	29	4	12.1	2	55
Detroit College of Medicine and Surgery	55	52	3	5.5	4	54	52	2	3.7	3	1	0	1	100.0	1	52	50	2	3.8	2	39
College of Physicians and Surgeons, Los Angeles	55	55	0	0.0	4	55	55	0	0.0	4	.....	.....	.....	.....	.....	52	52	0	0.0	4	4
John A. Creighton Medical College	52	48	4	7.7	10	46	42	4	8.7	8	6	6	0	0.0	4	38	36	2	5.3	5	49
Totals	2913	2571	342	11.7	....	2708	2426	282	10.4	....	205	145	60	29.4	....	1719	1606	113	6.5		

This table is especially interesting, since it gives data relating to the 30 larger medical colleges arranged according to the number of graduates examined. This allows of comparison between colleges having classes of nearly equal size. For the fifth consecutive year the Chicago College of Medicine and Surgery has had the largest number, the position having been held by the College of Physicians and Surgeons of Chicago in 1906, 1907 and 1912. In 1908, Jefferson Medical College had the highest number examined. In 1909, 1910 and 1911 the University of Louisville Medical Department had the largest number examined. The first place from the standpoint of the number examined, however, does not always mean first place from the standpoint of scholarship. Note the percentages of failures. The highest failure percentages are for the New York Homeopathic Medical College, 36.2; Meharry Medical College, 30.3; and University of Maryland School of Medicine, 19.3.

Of the 10 colleges having 100 or more examined, only 3 have failure percentages of less than 10, while the others stand out prominently with large failure percentages and for 5 the high percentages hold even of graduates of 1917.

Of the 20 colleges having between 50 and 100 graduates examined, sixteen had failure percentages of less than 10, and four had failure percentages between 10 and 20.

Not one of these colleges had a percentage of failures of 20 or above. The results indicate that colleges having classes of less than 100 students, as a rule, furnish a better training than those having larger classes.

The average percentage of failures for these larger colleges for graduates of 1912 and previous years was 29.4; for graduates of 1913 to 1917 inclusive (recent graduates), 10.4; for graduates of 1917, 6.5, and for graduates of all years, 11.7. Of the 4,253 graduates of the 89 colleges in the United States which had graduates examined by state boards in 1917, these larger (33.7 per cent. of all) schools furnished 2,913, or 68.5 per cent., of the graduates examined.

colleges. Of all candidates examined, 4.1 per cent. came from medical colleges which have ceased to exist and from foreign medical colleges. A comparison of these figures with the results for 1910, as shown in Table 2, will be interesting. The differences would be greater if the classification in 1910 had been as strict as that in 1917. It is interesting to note that in 1910, 3.4 per cent. of all candidates were undergraduates. In 1916 and 1917 not a single undergraduate was registered.

Table 3 will also be interesting, in that the failure percentages of candidates coming from the various groups of colleges support the classifications. It will be noted that graduates of Class A medical schools had a much lower

TABLE G.—COMPARISON OF RESULTS IN HOME STATES AND ELSEWHERE. BASED ON TABLE B.

COLLEGES	Total Examined	Results in Home State			Results in Other States		
		Passed	Failed	Per Cent. Failed	Passed	Failed	Per Cent. Failed
ALABAMA —	**17**	**13**	**0**	**0.0**	**4**	**0**	**0.0**
University of Alabama School of Med.	17	13	0	0.0	4	0	0.0
ARKANSAS —	**14**	**14**	**0**	**0.0**	.....	.....	.....
University of Arkansas Medical Dept.	14	14	0	0.0	.....	.....	.....
CALIFORNIA +8.9	**154**	**133**	**4**	**2.9**	**15**	**2**	**11.8**
College of Medical Evangelists	13	12	0	0.0	1	0	0.0
Coll. of Phys. and Surgs., Los Angeles	55	50	0	0.0	5	0	0.0
Coll. of Phys. and Surgs., San Francisco	12	6	3	50.0	3	0	0.0
Hahnemann Med. Coll. of the Pacific	21	16	1	5.9	4	0	0.0
Leland Stanford Junior University	22	20	0	0.0	0	2	100.0
Oakland College of Med. and Surg.	4	4	0	0.0	.....	.....	.....
University of California Medical School	27	25	0	0.0	2	0	0.0
COLORADO —	**26**	**20**	**0**	**0.0**	**6**	**0**	**0.0**
University of Colorado	26	20	0	0.0	6	0	0.0
CONNECTICUT —	**12**	**9**	**0**	**0.0**	**3**	**0**	**0.0**
Yale University	12	9	0	0.0	3	0	0.0
DISTRICT OF COLUMBIA +10.0	**39**	**9**	**0**	**0.0**	**27**	**3**	**10.0**
Georgetown University	4	2	0	0.0	2	0	0.0
George Washington University	16	7	0	0.0	8	1	11.1
Howard University	19	.....	.....	.....	17	2	10.5
GEORGIA +25.7	**105**	**70**	**0**	**0.0**	**26**	**9**	**25.7**
Atlanta Medical College	80	59	0	0.0	23	7	23.3
University of Georgia	16	11	0	0.0	3	2	40.0
ILLINOIS —3.0	**722**	**447**	**64**	**12.5**	**191**	**20**	**9.5**
Chicago College of Med. and Surg.	261	155	34	18.0	60	12	16.7
Chicago Hospital College of Medicine	23	15	8	34.8	.....	.....	.....
Hahnemann Medical College and Hosp.	41	27	4	12.9	10	0	0.0
Jenner Medical College	24	20	3	13.0	1	0	0.0
Loyola University	122	77	13	14.4	26	6	18.7
Northwestern University	41	28	1	3.4	12	0	0.0
Rush Medical College	147	99	0	0.0	56	1	1.8
University of Illinois	64	35	1	2.8	27	1	3.6
INDIANA —	**28**	**25**	**0**	**0.0**	**3**	**0**	**0.0**
Indiana University	28	25	0	0.0	3	0	0.0
IOWA —	**22**	**20**	**0**	**0.0**	**2**	**0**	**0.0**
State Univ. of Iowa Coll. of Med.	21	19	0	0.0	2	0	0.0
State Univ. of Iowa Coll. of Homeo. Med.	1	1	0	0.0	.....	.....	.....
KANSAS —	**15**	**14**	**0**	**0.0**	**1**	**0**	**0.0**
University of Kansas	15	14	0	0.0	1	0	0.0
KENTUCKY —4.9	**60**	**39**	**2**	**4.9**	**19**	**0**	**0.0**
University of Louisville	60	39	2	4.9	19	0	0.0
LOUISIANA +0.9	**61**	**34**	**1**	**2.9**	**25**	**1**	**3.8**
Tulane University of Louisiana	61	34	1	2.9	25	1	3.8
MAINE +20.0	**13**	**8**	**0**	**0.0**	**4**	**1**	**20.0**
Bowdoin Medical School	13	8	0	0.0	4	1	20.0
MARYLAND +4.4	**190**	**66**	**6**	**8.3**	**103**	**15**	**12.7**
Johns Hopkins University	92	38	2	5.0	50	2	3.8
University of Maryland	98	28	4	12.5	53	13	19.7
MASSACHUSETTS +5.2	**255**	**159**	**18**	**10.2**	**66**	**12**	**15.4**
Boston University	37	26	3	10.3	7	1	12.5
College of Phys. and Surgs., Boston	17	4	10	71.4	2	1	33.3
Medical School of Harvard University	97	59	0	0.0	38	2	5.0
Tufts College Medical School	108	69	4	5.5	19	8	29.6
Middlesex College of Med. and Surg.	2	1	1	50.0	.....	.....	.....
MICHIGAN +23.8	**118**	**101**	**3**	**2.9**	**11**	**4**	**26.7**
Detroit College of Med. and Surg.	54	50	2	3.8	2	0	0.0
University of Michigan Medical School	59	48	1	2.0	8	2	20.0
Univ. of Michigan Homeo. Med. School	6	3	0	0.0	1	2	66.7
MINNESOTA —	**36**	**32**	**0**	**0.0**	**4**	**0**	**0.0**
University of Minnesota	36	32	0	0.0	4	0	0.0
MISSOURI +22.0	**164**	**105**	**0**	**0.0**	**46**	**13**	**22.0**
Eclectic Medical University*	6	.....	.....	.....	4	2	50.0
Kansas City College of Med. and Surg.*	30	.....	.....	.....	24	6	20.0
National Univ. of Arts and Sciences	44	40	0	0.0	3	1	25.0
St. Louis College of Phys. and Surgs.	15	9	0	0.0	3	3	50.0
St. Louis University	45	37	0	0.0	7	1	12.5
Washington University	24	19	0	0.0	5	0	0.0
NEBRASKA +22.2	**70**	**52**	**0**	**0.0**	**14**	**4**	**22.2**
John A. Creighton Medical College	46	32	0	0.0	10	4	28.6
Lincoln Medical College	6	5	0	0.0	1	0	0.0
University of Nebraska	18	15	0	0.0	3	0	0.0
NEW YORK —8.5	**605**	**474**	**80**	**14.4**	**48**	**3**	**5.9**
Albany Medical College	57	46	10	17.9	0	1	100.0
Columbia University	105	81	14	14.7	10	0	0.0
Cornell University Medical College	25	21	0	0.0	4	0	0.0
Fordham University	57	47	7	13.0	3	0	0.0
Long Island College Hospital	73	68	3	4.2	1	1	50.0
N. Y. Homeo. Med. Coll. & Flower Hosp.	108	54	35	39.3	13	1	7.2
N. Y. Med. Coll. and Hosp. for Women	14	13	0	0.0	1	0	0.0
Syracuse University	32	29	0	0.0	3	0	0.0
Univ. and Bellevue Hosp. Medical College	73	61	5	7.6	9	0	0.0
University of Buffalo	64	54	6	10.0	4	0	0.0
NORTH CAROLINA +16.7	**16**	**12**	**0**	**0.0**	**5**	**1**	**16.7**
North Carolina Medical College	18	12	0	0.0	5	1	16.7
OHIO +3.1	**185**	**138**	**1**	**0.7**	**25**	**1**	**3.8**
Eclectic Medical College	33	22	1	4.4	9	1	10.0
Ohio State University College of Med.	70	63	0	0.0	7	0	0.0
Ohio State Univ. College of Homeo. Med.	8	8	0	0.0	.....	.....	.....
University of Cincinnati College of Med.	18	13	0	0.0	5	0	0.0
Western Reserve University	36	32	0	0.0	4	0	0.0
OKLAHOMA +62.5	**35**	**27**	**0**	**0.0**	**3**	**5**	**62.5**
University of Oklahoma	35	27	0	0.0	3	5	62.5
OREGON —	**12**	**8**	**0**	**0.0**	**4**	**0**	**0.0**
University of Oregon	12	8	0	0.0	4	0	0.0
PENNSYLVANIA +4.9	**374**	**196**	**4**	**2.0**	**162**	**12**	**6.9**
Hahnemann Medical College and Hosp.	23	11	1	8.3	9	2	18.2
Jefferson Medical College	140	66	2	2.9	68	4	5.6
Medico-Chirurgical Coll. of Philadelphia	77	53	1	1.9	21	2	8.7
Temple University	21	16	0	0.0	5	0	0.0
University of Pennsylvania	65	20	0	0.0	43	2	4.4
University of Pittsburgh	24	21	0	0.0	3	0	0.0
Woman's Medical College of Pennsylvania	24	9	0	0.0	13	2	13.3
SOUTH CAROLINA —14.3	**23**	**18**	**3**	**14.3**	**2**	**0**	**0.0**
Medical College of South Carolina	23	18	3	14.3	2	0	0.0
TENNESSEE +25.9	**361**	**155**	**7**	**4.3**	**139**	**60**	**30.2**
Lincoln Memorial University	16	7	0	0.0	6	3	33.3
Meharry Medical College	177	53	3	5.4	74	47	38.8
University of Tennessee	57	28	0	0.0	26	3	10.3
University of West Tennessee	19	6	4	40.0	3	6	66.7
Vanderbilt University	92	61	0	0.0	30	1	3.2
TEXAS +11.1	**80**	**71**	**1**	**1.4**	**7**	**1**	**12.5**
Baylor University	17	12	1	7.7	4	0	0.0
Fort Worth School of Medicine	17	15	0	0.0	1	1	50.0
University of Texas	46	44	0	0.0	2	0	0.0
VERMONT +21.1	**28**	**9**	**0**	**0.0**	**15**	**4**	**21.1**
University of Vermont	28	9	0	0.0	15	4	21.1
VIRGINIA +10.9	**105**	**53**	**3**	**5.4**	**41**	**8**	**16.3**
Medical College of Virginia	90	42	3	6.7	37	8	17.8
University of Virginia	15	11	0	0.0	4	0	0.0
WISCONSIN —	**9**	**7**	**0**	**0.0**	**2**	**0**	**0.0**
Marquette University	9	7	0	0.0	2	0	0.0
Totals +7.7	**3933**	**2538**	**197**	**7.2**	**1024**	**179**	**14.9**

* These two colleges are reported as not recognized by the licensing board of the home state—Missouri—and they could not exist were it not for their being recognized elsewhere.

In this table the graduates of each college who were examined in the state in which the college is located are grouped in one column, while graduates of that college examined in other states are in another column. For example, under Louisiana, this table shows that of the 61 graduates of the Tulane University School of Medicine who were examined by state boards during 1917, 35 were examined in Louisiana, of which number 34 passed and 1, or 2.9 per cent., failed, while 26 were examined in other states, of which number 25 passed and 1, or 3.8 per cent., failed.

This table shows that in many instances the graduates have better chances of passing examinations in the state in which their colleges are located than they have elsewhere. This should always be considered in making comparisons between colleges. A low standard college by having all its graduates examined in the home state, or by a partisan board, may show a lower percentage of failures than a college of much higher grade which has graduates examined by several states.

The heavy-faced figures give the results by states. The first column of heavy-faced figures, preceded by the + and — signs, shows the differences between the percentages of examination in the home state and the examination elsewhere. The plus sign indicates that graduates have better chances of success in the state where the colleges from which they graduated are located; the minus sign indicates that the chances are better elsewhere. The most marked variations in 1917 were in the examination of the graduates of the colleges of Oklahoma, 62.5 per cent.; Tennessee, 25.9; Georgia, 25.7; Michigan, 23.8; Nebraska, 22.2; Missouri, 22.0; Vermont, 21.1, and Maine, 20.0, in all of which the chances of the graduates were better in the home state. The marked variations where the graduates' chances were better elsewhere were in South Carolina, 14.3, and New York, 8.5 per cent.

The totals show that, on the average, the chances of success were 7.7 per cent. better if the graduate took the examination in the state where his college was located.

percentage of failures than graduates of colleges in Classes B and C. In this connection it should be stated that the percentage of failures for Class C medical colleges would doubtless be higher except for the fact that graduates of several of these colleges were examined largely, if not entirely, by partisan or sectarian boards, and not by single boards which examine graduates of all schools. It should be remembered also that the graduates of Class C colleges, as a rule, are refused examination by all but a few state boards, and that in the latter, as a rule, the examinations are not as severe as in the other states.

STUDY OF TOTALS AND PERCENTAGES

A study of totals and percentages as compared with previous years is of interest. The total examined in 1917—4,730—is the lowest number of candidates examined for license in any year since the compiling of these statistics began. (See Table 4.) The number examined was 120 less than in 1916, 583 less than in 1915 and 3,305 less than in 1906, when 8,035 candidates were examined. Statistics regarding physicians licensed in the various states by reciprocity and by other methods are given in Tables I, J, K and L. By all methods—examination, reciprocity, under exemption, etc.—5,423 physicians were licensed during 1917, or 38 less than in 1916, 449 less than in 1915, and 2,442 less than in 1906, when 7,865 physicians were licensed.

TABLE 4.—TOTAL RESULTS

Comparison with Previous Years

Year	All Candidates Examined				Recent Graduates		Older Graduates		Non-Graduates		Registered without Written Examination	Total Registered
	Examined	Passed	Failed	Percentage Failed	Examined	Percentage Failed	Examined	Percentage Failed	Examined	Percentage Failed		
1904	7035	5672	1363	19.3	4773	14.1	579	29.7	515	52.6	999	6671
1905	7170	5680	1490	20.8	6054	16.2	690	37.7	472	61.9	394	6074
1906	8035	6368	1667	20.7	6250	16.4	793	27.1	703	51.3	1497	7865
1907	7271	5723	1548	21.3	5922	15.1	675	27.7	674	69.6	1426	7149
1908	7770	6084	1686	21.7	6477	17.8	796	31.5	494	56.8	1276	7360
1909	7287	5857	1430	19.6	5891	15.4	958	30.0	438	54.1	1373	7230
1910	7004	5712	1292	18.4	5678	14.9	973	29.1	353	45.6	1640	7352
1911	6960	5578	1382	19.9	5685	17.2	945	29.4	330	38.5	1246	6824
1912	6879	5466	1413	20.5	5770	18.6	856	29.2	253	34.8	1257	6723
1913	6435	5236	1199	18.6	5390	16.5	225	32.1	251	37.8	1265	6501
1914	5570	4370	1200	21.6	4549	17.6	728	30.0	293	61.4	1427	5797
1915	5313	4486	827	15.6	4627	13.2	621	29.3	65	49.2	1386	5872
1916	4850	4123	727	15.0	4283	12.7	567	32.1	.....	.....	1338	5461
1917	4730	4061	669	14.1	4015	10.1	564	32.6	.....	.....	1362	5423

Other deductions from the larger tables presented in Tables E to H are worthy of special study.

STUDY OF COLLEGES BY STATE GROUPS

Table E gives the results for the group of colleges located in each state. It shows what states are furnishing the largest number of physicians, and the failure precentages indicate the kind of training these colleges are furnishing, so far as may be judged from the results of state board examinations. Of the thirty-two states having medical colleges which grant degrees, twelve furnished 100 or more candidates examined, six states furnished more than 200 each, and four furnished over 300 each. Illinois furnished 772 graduates, the largest number, followed by New York with 631, Pennsylvania with 416 and Tennessee with 382. Of the thirty-two groups of colleges, twenty-two had failure percentages of less than 10 per cent., nine had failure percentages between 10 and 20, and only one had 20 per cent. or more of failures. The highest failure percentage was obtained by the Tennessee group, with 20.6. Other deductions are given in the legend to the table.

STUDY OF LARGER COLLEGES

Table F is also based on the three large tables, and gives the results of state board examinations as they affect the thirty largest medical colleges. Although these colleges represent 33.7 per cent. of the 89 medical colleges in the United States having graduates examined, they furnish 68.5 per cent. of all candidates for license coming from medical schools of the United States. This table shows, however, that the graduating of large classes by a medical college does not prove excellence of teaching, since two of the colleges having 100 or more examined have high failure percentages. The larger the college from the standopint of students and graduates, the more serious is inferior teaching ability, as indicated by a high failure percentage. In fairness both to

TABLE H.—PHYSICIANS EXAMINED BY STATE BOARDS, 1913 TO 1917, INCLUSIVE

STATES	1913		1914		1915		1916		1917		Totals			
	Registered	Rejected	Registered	Rejected	Registered	Rejected	Registered	Rejected	Registered	Rejected	Examined	Registered	Rejected	Percentage Rejected
Alabama	90	57	115	60	79	45	55	36	45	21	603	384	219	36.3
Alaska	...	...	4	0	6	0	11	1	2	0	24	23	1	4.2
Arizona	26	9	26	16	10	7	33	9	32	5	173	127	46	26.6
Arkansas	91	28	97	16	75	7	67	11	80	12	484	410	74	15.2
California	163	36	113	45	137	39	146	8	235	94	1016	794	222	21.9
Colorado	53	5	31	1	19	5	25	8	38	2	187	166	21	11.2
Connecticut	77	51	46	8	46	17	41	20	72	22	400	282	118	29.5
Delaware	12	1	18	0	13	0	13	2	14	0	73	70	3	4.1
Dist. of Columbia	55	5	47	12	51	13	33	14	26	7	263	212	51	19.3
Florida	116	49	106	37	83	25	68	18	44	12	558	417	141	25.2
Georgia	171	24	179	21	176	17	133	7	100	2	830	759	71	8.5
Idaho	21	2	19	2	23	1	29	0	20	2	119	112	7	5.9
Illinois	567	98	484	110	439	64	517	91	487	101	2958	2494	464	15.6
Indiana	101	1	48	2	49	3	49	4	39	2	298	286	12	4.0
Iowa	107	4	77	1	85	4	82	2	45	1	408	396	12	2.9
Kansas	89	7	37	4	29	4	32	1	24	3	230	211	19	8.2
Kentucky	78	12	59	7	83	7	66	10	68	16	406	354	52	12.8
Louisiana	69	20	76	24	69	21	68	10	44	13	414	326	88	21.2
Maine	46	9	54	11	63	6	25	2	33	1	250	221	29	11.6
Maryland	108	40	105	27	111	29	96	30	82	11	639	502	137	21.4
Massachusetts	215	74	226	97	238	65	166	40	219	42	1382	1064	318	23.0
Michigan	99	3	138	2	120	6	135	5	125	3	636	617	19	2.9
Minnesota	71	4	47	3	59	6	56	1	60	0	307	293	14	4.5
Mississippi	61	19	51	17	84	15	48	29	23	5	352	267	85	24.1
Missouri	200	25	195	33	200	22	161	13	166	12	1027	922	105	10.2
Montana	57	16	58	25	48	16	38	14	43	24	339	244	95	28.0
Nebraska	87	2	66	6	70	6	52	0	63	0	352	338	14	3.9
Nevada	10	3	7	3	12	1	10	1	8	0	55	47	8	14.5
New Hampshire	17	3	36	6	6	1	10	0	6	0	85	75	10	11.8
New Jersey	69	7	41	13	71	8	72	10	26	6	323	279	44	13.6
New Mexico	6	1	8	2	5	0	5	1	...	...	28	24	4	14.3
New York	511	205	501	169	618	165	523	159	600	146	3597	2753	844	23.4
North Carolina	77	34	81	37	106	30	96	18	65	10	554	425	129	23.2
North Dakota	16	13	15	1	10	5	15	5	6	1	87	62	25	28.7
Ohio	189	3	146	18	149	3	182	5	185	4	884	851	33	3.7
Oklahoma	58	5	48	12	50	13	52	8	52	2	300	260	40	13.3
Oregon	112	36	76	42	56	30	38	17	37	7	451	319	132	29.2
Pennsylvania	345	59	101	22	208	24	233	33	241	12	1278	1128	150	11.7
Rhode Island	28	4	27	5	26	6	27	7	22	1	153	130	23	15.0
South Carolina	99	47	68	37	53	36	53	24	37	29	483	310	173	35.8
South Dakota	30	1	25	4	25	0	18	2	18	1	124	116	8	6.5
Tennessee	306	94	149	205	101	4	128	20	167	10	1184	851	333	28.1
Texas	168	11	152	11	136	11	90	13	119	5	716	665	51	7.1
Utah	24	3	13	3	21	1	15	0	11	0	91	84	7	7.7
Vermont	24	2	28	0	36	0	17	0	13	1	121	118	3	2.5
Virginia	87	19	98	10	100	8	99	8	64	4	497	448	49	9.8
Washington	63	22	92	5	75	14	48	4	57	7	387	335	52	13.4
West Virginia	58	17	51	4	70	7	58	2	45	7	319	282	37	11.5
Wisconsin	98	8	81	4	74	10	72	4	40	3	394	365	29	7.3
Wyoming	10	1	4	0	13	0	17	0	13	0	58	57	1	1.7
Totals	6434		5570		5313		4850		4730		26896			
Registered	5235		4370		4486		4123		4061		22275			
Rejected	1199		1200		827		727		669		4622			
Per Cent. Rejected	18.6		21.6		15.6		15.0		14.1		17.2			

This table gives the number of candidates registered and rejected on examination by each state during each of the last five years. The last four columns give the totals for the five years and the percentage rejected by each state.

Four states registered over 1,000 candidates by examination in the five years, these being New York, Illinois, Pennsylvania and Massachusetts. Over 2,000 were registered in only two states, New York with 2,753 and Illinois with 2,494. Altogether 22,202 physicians were registered by examination in five years, an average of 4,440 each year.

The seven highest percentages of rejections for the five years were in Alabama, 36.3; South Carolina, 35.8; Connecticut, 29.5; Oregon, 29.2; North Dakota, 28.7; Tennessee, 28.1; and Montana, 28.0. Until 1916 Massachusetts, Oregon and Tennessee included nongraduates among those examined during the last five years, and for that reason would be expected to have higher percentages rejected. On the other hand, in several states the boards refused to recognize certain colleges and eliminated many candidates prior to the examination by a careful scrutiny of credentials and as a result the percentages of failures at the examinations are lower than otherwise would be the case. For example, Ohio rejected only 3.7 per cent. of those who took their examinations, but graduates of nineteen medical colleges are not eligible for admission to the examinations. This table therefore should be studied in connection with Table D.

The lowest failure percentages were in Wyoming, 1.7; Vermont, 2.5; Michigan and Iowa, each 2.9; Ohio, 3.7; and Nebraska, 3.9.

medical students and to the public, such schools should strengthen their teaching facilities or reduce the size of their classes.

RESULTS IN HOME STATES AND ELSEWHERE

Table G is of much interest, because it shows for each college the results of examinations in the state in which the college is located, as compared with the results of examinations in other states, where there is less probability of local influence. Of the 3,938 recent graduates examined in 1917 who came from the eighty-nine medical colleges of the United States which had graduates examined, 2,538, or 64.5 per cent., took their license examinations in the states in which were located the colleges from which they graduated. Of this number, 7.2 per cent. failed on the average, whereas, of the 1,024 graduates examined in other states, 14.9 per cent. failed. This would indicate that, on the average, the student has 7.7 per cent. better chances of passing the license examination by taking it in the state in which the college is located. Of the medical colleges located, respectively, in Oklahoma, Georgia, Nebraska, Missouri, Vermont, North Carolina and the District of Columbia, all graduates who were examined in the home state passed. On the other hand the graduates of the colleges of the above states, when examined in other than the home state, failed in the following percentages, respectively: 62.5, 25.7, 22.2, 22.0, 21.1, 16.7 and 10.0. Attention is called to the glaring fact that thirty-six graduates of two low-grade medical colleges of Missouri—who were not admitted to the examinations in their home states because those colleges were not, and still are not, recognized in Missouri—were admitted to examinations by the Eclectic Boards of Arkansas and Connecticut, and twenty-six of them passed and were granted licenses to practice. The people of Arkansas and Connecticut should be made aware of this fact. It is they who will suffer and not the people of Missouri.

TABLE 1.—REGISTRATION BY STATE BOARDS DURING THE YEAR 1917

STATES	By Examination			By Reciprocity	Without Written Examination or Under Exemption	Total Registered
	Graduates, 1913-1917	Graduates, 1912 and Previous	Graduates of Nondescript Colleges			
Alabama	41	4	....	....	3	48
Alaska	1	1	....	....	....	2
Arizona	12	20	....	....	....	32
Arkansas	65	15	....	31	....	111
California	156	6	73	204	1	440
Colorado	30	8	....	62	....	100
Connecticut	59	13	....	11	1	84
Delaware	14	....	....	3	....	17
District of Columbia	22	4	....	7	....	33
Florida	20	24	....	....	....	44
Georgia	96	4	....	22	....	122
Idaho	7	13	....	5	....	25
Illinois	470	17	....	33	....	520
Indiana	38	1	....	40	....	79
Iowa	39	6	....	46	....	91
Kansas	23	1	....	43	....	67
Kentucky	67	1	....	8	....	76
Louisiana	40	4	....	7	....	51
Maine	27	6	....	9	....	42
Maryland	80	2	....	18	....	100
Massachusetts	196	23	....	....	....	219
Michigan	120	5	....	72	1	198
Minnesota	55	5	....	43	....	103
Mississippi	23	....	....	14	....	37
Missouri	150	16	....	40	....	206
Montana	23	20	....	....	....	43
Nebraska	57	6	....	36	....	99
Nevada	2	6	....	16	....	24
New Hampshire	5	1	....	12	....	18
New Jersey	24	2	....	96	....	122
New Mexico	....	....	....	....	67	67
New York	567	33	....	26	9	635
North Carolina	62	3	....	21	....	86
North Dakota	5	1	....	18	....	24
Ohio	176	9	....	60	....	245
Oklahoma	45	7	....	90	....	142
Oregon	19	18	....	....	....	37
Pennsylvania	234	7	....	17	....	258
Rhode Island	18	4	....	....	....	22
South Carolina	33	4	....	....	....	37
South Dakota	10	8	....	6	....	24
Tennessee	161	6	....	....	....	167
Texas	108	11	....	57	....	176
Utah	11	....	....	8	1	20
Vermont	12	1	....	....	....	13
Virginia	64	....	....	18	....	82
Washington	34	23	....	....	....	57
West Virginia	41	4	....	39	....	84
Wisconsin	38	2	....	27	....	67
Wyoming	9	4	....	14	....	27
Totals	3000	379	73	1279	83	5423

This table shows the total number registered during 1917 in each state by the various methods. The first three columns show those registered by examination: the first column showing the recent graduates registered, the second column the old practitioners (graduates of 1912 and previous years) and the third column shows those licensed who were graduates of institutions not generally recognized as medical colleges. The fourth column shows the number licensed through reciprocity and the fifth column shows those licensed under various exemption clauses in the practice acts, such as because of national fame or by recognition of diplomas (New Mexico). California granted the physician's license to 73 out of 151 applicants who graduated from osteopathic colleges. Of these, 24 were given merely an "oral, practical or clinical examination."

It is interesting to note that as a rule states which registered large numbers through reciprocity, New Jersey, Oklahoma and Michigan, for example, examined very few old practitioners. The large registration through reciprocity in California is due to the liberal provision in the recent medical practice act providing for the recognition of licenses granted in other states. There were no reciprocal registrations reported for thirteen states, including Alaska.

The last column shows the total number of physicians registered by all methods in each state during the year. Only three states registered over 300 each, these being New York, 635; Illinois, 520, and California, 440. Seventeen states registered less than 50 each. The largest registration was 635 in New York and the smallest was 2 in Alaska. The total registered by all methods was 5,423, a decrease of only 38 below the total registered in 1916.

TOTAL RESULTS FOR FIVE YEARS

Table H shows the number registered and the number rejected in each state for each of the past five years. A comparison of this table with the statistics in the last educational number of THE JOURNAL (Aug. 18, 1917, p. 598, Table 12) shows—what would be expected—that the states having the largest number of medical graduates examined the largest number of physicians. New York leads, having examined 3,597 candidates in five years, followed by Illinois with 2,958. The five states having the next highest numbers are Massachusetts with 1,382, Pennsylvania with 1,278, Tennessee with 1,184 and Missouri with 1,027.

TOTAL REGISTRATION IN 1917

The tables thus far described have referred only to the results of examinations and to those registered on that basis. Table I, however, shows the total number who received licenses in each state, including those registered by examination, by reciprocity and under various exemption clauses. Altogether 5,423 physicians were registered by all methods during 1917, as compared with 5,461 in 1916, 5,872 in 1915, 5,797 in 1914 and 7,865 in 1906. There has been a constant decrease in the totals licensed by all methods until 1915, when there was an increase of 79. In 1917 the total registered was 38 less than in 1916 and 449 less than in 1915. By reciprocity or under exemption clauses, 1,362 were licensed in 1917, as compared with 1,338 in 1916, 1,386 in 1915, 1,427 in 1914 and 1,265 in 1913. No undergraduate has been registered in any state during the last two years.

Over 100 were registered by all methods in seventeen states, over 200 in seven and over 300 in three, the largest numbers registered being 635 in New York, 503 in Illinois and 440 in California. Of those licensed in California, 204, or 46.4 per cent., were registered by the endorsement of licenses granted by the boards of other states. California also registered as physicians and surgeons 73 graduates of osteopathic colleges.

MEDICAL TRAINING OF APPLICANTS LICENSED

Table J is of special interest, since it shows for each state the character of the medical training of the candidates licensed during 1917. Of the 5,423 candidates licensed, 4,061 were by examination and 1,362 were by reciprocity or on presentation of acceptable credentials. In considering the colleges from which reciprocal candidates graduated, the classification is not applied to any one who graduated prior to 1907 when the first classification of medical colleges was completed by the Council on Medical Education. Of the 4,061 candidates licensed by examination, 2,827, or 69.6 per cent., were from Class A schools; 813, or 20.0 per cent., were

from Class B schools, 255, or 6.3 per cent., were from Class C schools, and 166 were graduates of colleges which merged with others, or became extinct prior to 1907. Among the graduates of Class C schools are included 73 graduates of osteopathic colleges who were granted the physician and surgeon's license in California. Of the 1,362 candidates licensed by reciprocity, 603, or 44.3 per cent., graduated prior to 1907, and are, therefore, included among miscellaneous, or unclassified colleges; 542, or 39.8 per cent., were graduates of Class A medical schools; 175, or 12.8 per cent., were graduates of Class B schools, and 42, or 3.1 per cent., were from Class C schools. Altogether, of the 5,423 graduates registered in 1917, 3,369, or 62.1 per cent., were graduates of Class A medical schools; 988, or 18.2 per cent., were from Class B schools, 297, or 5.3 per cent., were from Class C schools, and for 769, or 14.4 per cent., the colleges are unclassified.

As will be noted, the largest numbers of Class C graduates were licensed in California, with 88; Missouri, with 61; Illinois, with 40, and Arkansas, with 26. All but one of the Class C graduates registered in Arkansas were licensed by the Eclectic board.

Illinois registered 273 Class B graduates, the largest number, followed by California with 97, Tennessee with 63, New York with 57 and Oklahoma with 52. Arkansas, California, Illinois and Oklahoma licensed more graduates of Class B and Class C colleges than graduates of Class A medical schools.

Only Class A graduates were registered either by examination or reciprocity in New Hampshire and Rhode Island.

TABLE J.—CHARACTER OF PHYSICIANS LICENSED IN 1917

STATES	By Examination					On Reciprocity or Credentials					Totals Registered From Medical Colleges in Class				Grand Totals
	Medical Colleges in Class				Totals	Medical Colleges in Class				Totals					
	A	B	C	Misc.		A	B	C	Misc.		A	B	C	Misc.	
Alabama	39	3	0	3	45	2	0	0	1	3	41	3	0	4	48
Alaska	1	1	0	0	2	...	...	...	...	...	1	1	0	0	2
Arizona	23	3	0	6	32	...	...	...	...	...	23	3	0	6	32
Arkansas	22	24	25[1]	9	80	5	10	1	15	31	27	34	26[1]	24	111
California	64	81	88[2]	7	235	50	16	5	134	205	114	97	88[2]	141	440
Colorado	29	5	1	3	38	21	6	0	35	62	50	11	1	38	100
Connecticut	58	8	3	3	72	3	1	2	6	12	61	9	5	9	84
Delaware	11	3	0	0	14	1	0	0	2	3	12	3	0	2	17
District of Columbia	20	4	0	2	26	3	0	2	2	7	23	4	2	4	33
Florida	30	4	0	10	44	...	...	...	...	...	30	4	0	10	44
Georgia	78	17	0	5	100	13	2	0	7	22	91	19	0	12	122
Idaho	12	1	1	6	20	3	1	0	1	5	15	2	1	7	25
Illinois	178	265	37	7	487	13	8	3	9	33	191	273	40	16	520
Indiana	34	4	0	1	39	16	9	0	15	40	50	13	0	16	79
Iowa	40	5	0	0	45	20	15	1	10	46	60	20	1	10	91
Kansas	22	2	0	0	24	9	2	4	28	43	31	4	4	28	67
Kentucky	47	21	0	0	68	3	2	0	3	8	50	23	0	3	76
Louisiana	37	5	0	2	44	7	0	0	0	7	44	5	0	2	51
Maine	30	1	1	1	33	4	0	0	5	9	34	1	1	6	42
Maryland	78	3	1	0	82	7	1	1	9	18	85	4	2	9	100
Massachusetts	202	6	6	5	219	...	...	...	...	...	202	6	6	5	219
Michigan	114	8	1	2	125	36	10	0	27	73	150	18	1	29	198
Minnesota	57	0	0	3	60	29	3	0	11	43	86	3	0	14	103
Mississippi	15	5	0	3	23	2	4	1	7	14	17	9	1	10	37
Missouri	84	20	55	7	166	17	7	6	10	40	101	27	61	17	206
Montana	28	7	0	8	43	...	...	...	...	...	28	7	0	8	43
Nebraska	53	2	6	2	63	9	5	2	20	36	62	7	8	22	99
Nevada	4	0	1	3	8	4	2	1	9	16	8	2	2	12	24
New Hampshire	6	0	0	0	6	6	0	0	6	12	12	0	0	6	18
New Jersey	23	1	0	2	26	59	12	1	24	96	82	13	1	26	122
New Mexico	...	...	...	...	...	28	4	1	34	67	28	4	1	34	67
New York	515	56	17	12	600	15	1	0	19	35	530	57	17	31	635
North Carolina	47	18	0	0	65	8	1	1	11	21	55	19	1	11	86
North Dakota	4	2	0	0	6	12	2	0	4	18	16	4	0	4	24
Ohio	141	40	0	4	185	29	3	1	27	60	170	43	1	31	245
Oklahoma	19	30	2	1	52	16	22	4	48	90	35	52	6	49	142
Oregon	23	2	4	8	37	...	...	...	...	...	23	2	4	8	37
Pennsylvania	215	22	0	4	241	9	2	0	6	17	224	24	0	10	258
Rhode Island	19	0	0	3	22	...	...	...	...	...	19	0	0	3	22
South Carolina	31	3	0	3	37	...	...	...	...	...	31	3	0	3	37
South Dakota	15	2	0	1	18	6	0	0	0	6	21	2	0	1	24
Tennessee	95	63	6	3	167	...	...	...	...	...	95	63	6	3	167
Texas	84	27	2	6	119	17	11	3	26	57	101	38	5	32	176
Utah	9	2	0	0	11	6	1	0	2	9	15	3	0	2	20
Vermont	11	1	0	1	13	...	...	...	...	...	11	1	0	1	13
Virginia	61	3	0	0	64	11	1	1	5	18	72	4	1	5	82
Washington	35	8	1	13	57	...	...	...	...	...	35	8	1	13	57
West Virginia	33	9	0	3	45	19	5	1	14	39	52	14	1	17	84
Wisconsin	25	14	0	1	40	19	3	0	5	27	44	17	0	6	67
Wyoming	6	2	2	3	13	5	3	0	6	14	11	5	2	9	27
Totals	2827	813	255	166	4061	542	175	42	603	1362	3369	988	297	769	5423

1. Of the 111 physicians licensed in Arkansas, the Regular Board licensed by examination 22 Class A, 22 Class B, and 9 miscellaneous graduates and by reciprocity 5 Class A, 10 Class B, 1 Class C, and 14 miscellaneous graduates, a total of 83. The Eclectic Board licensed by examination 2 Class B and 25 Class C graduates, a total of 27. The Homeopathic Board reported no candidates licensed by examination and only one (miscellaneous) by reciprocity.

2. Of the 88 graduates of Class C colleges licensed in California, 73 were graduates of eight osteopathic colleges which are not generally recognized as medical colleges by state licensing boards, and only one of the colleges has been reported so recognized by the California board. Altogether 151 osteopaths were admitted to the examination for licensure as physicians and surgeons and 73 were so licensed.

This table shows the classification of the colleges from which most of the physicians graduated who were licensed in 1917. Graduates of colleges which became extinct prior to 1907 who were examined, and are reciprocity licentiates who graduated prior to 1907, are unclassified and included under "miscellaneous" since it was in 1907 that the Council on Medical Education completed its first classification of all medical colleges.

It will be seen that nine states accepted Class C graduates through reciprocity where they did not license any by examination. On the whole, however, more were licensed by examination than through reciprocity.

By both examination and reciprocity, the largest numbers of Class C graduates were licensed in California, 88 (including 73 osteopaths); Missouri, 61; Illinois, 40; Arkansas, 26 (25 were licensed by the Eclectic Board); and New York, 17. The largest numbers of Class B graduates were licensed in Illinois, 273; California, 97; Tennessee, 63; New York, 57; and Oklahoma, 52.

Of all physicians licensed, 3,369, or 62.1 per cent., were graduates of Class A medical schools; 988, or 18.2 per cent., from Class B schools; 297, or 5.3 per cent., from Class C schools, and 769, or 14.4 per cent., from miscellaneous colleges.

It is evident that in several states particularly, more care should be taken in the recognition of medical colleges, or better methods of examination should be adopted which will provide better safeguards against those not having adequate education.

Table K gives those registered without examination on presentation of satisfactory credentials, which included a license issued by some other state. This is commonly referred to as "reciprocity," which conveys the idea that the state

TABLE K.—PHYSICIANS REGISTERED THROUGH RECIPROCITY BY STATE EXAMINING BOARDS DURING 1917

STATE BOARDS OF	Total Reg. by Recip., Ex. State	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U. S. Navy	Natl. Bd. Med. Ex.	Alaska, Hawaii, etc.	Foreign
Arkansas	31	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	3	1	..	..	..	..	..	18	..	4	1	12	3	2	1	..	17	..	6	9	..	3	11	..	1	2	6	2	3	1	..	10	1	5	2	..	..	1	..
California	204	1	6	1	..	7	..	..	2	..	3	2	39	4	10	4	5	1	1	2	6	5	..	4	1	12	3	2	1	..	17	..	6	9	..	3	11	..	1	2	6	2	3	1	..	10	1	5	2	..	..	..	..
Colorado	62	2	..	3	..	..	..	..	..	..	1	..	11	..	8	3	..	1	2	2	2	2	..	8	..	1	..	..	..	..	1	..	6	..	1	1	1	..	1	..	..	..	..	3	1	..	..	..	1	..	..	..	1	..
Connecticut	11	..	..	..	1	..	..	..	..	1	1	..	1	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	1	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Delaware	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dist. of Col.	7	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	1	1	..	1	..	..	..	..	..	..	..
Georgia	22	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	3	..	4	1	..	1	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	7	..	..	2	..	1	..	..	..	..
Idaho	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Illinois	33	..	..	1	..	..	..	..	..	..	..	..	..	4	2	..	4	..	..	..	..	4	1	..	11	..	2	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	5	..	..	..	..	..	..	..	..
Indiana	40	..	..	..	..	..	..	..	1	..	..	..	19	..	..	1	2	..	..	..	..	1	..	..	2	..	..	..	..	..	..	2	..	..	3	..	..	2	..	..	..	2	..	..	..	3	..	1	1	..	..	..	..
Iowa	46	..	..	..	1	..	..	..	..	..	2	..	13	..	..	2	..	..	2	..	3	..	..	4	11	..	..	..	..	..	..	..	..	1	..	..	2	..	..	..	..	..	..	..	..	..	1	3	1	..	..	..	..
Kansas	43	1	..	1	..	..	..	..	..	..	1	..	3	..	2	..	2	..	1	1	..	..	..	16	..	3	..	1	..	..	..	5	..	1	..	..	3	..	..	1	..	..	..	1	..	..	1	..	..	..	..	..	..
Kentucky	8	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	1	..	1	..	1	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Louisiana	7	..	..	2	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..
Maine	0	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	1	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	2	1	..	..	..	..	..
Maryland	18	..	..	..	..	..	1	2	..	..	..	..	1	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	2	..	3	..	..	..	1	..	..
Michigan	72	..	..	..	1	..	..	..	3	..	..	..	27	4	1	2	3	..	1	5	..	1	..	7	..	..	..	..	..	..	1	..	..	6	1	..	3	..	2	..	..	..	2	1	..	..	1	2	..	..	..	..
Minnesota	43	..	..	..	1	..	..	1	..	..	1	..	12	..	6	..	..	1	..	..	..	..	..	1	..	7	1	..	..	..	1	2	..	..	..	..	..	..	..	1	..	..	..	3	..	..	5	1	..	..	..	..
Mississippi	14	..	..	2	..	..	..	..	..	..	1	..	..	..	1	..	4	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	1	..	..	1	..	..	..	..	..	..
Missouri	40	..	..	..	..	..	..	..	3	..	..	..	5	2	3	9	4	..	1	1	..	1	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	5	1	..	..	1	..	1	..	..	..	..
Nebraska	36	..	..	2	..	1	..	..	..	..	..	..	6	..	3	2	..	..	..	..	2	..	17	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Nevada	16	..	..	2	..	..	..	..	..	..	..	..	5	..	1	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	3	..	..	1	..	..	..	..	..
New Hampshire	12	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7	..	..	..	..	..	..	..	..	1	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..
New Jersey	96	1	..	..	..	..	..	..	4	..	1	..	2	..	..	..	2	1	1	4	2	1	..	..	..	1	..	2	..	..	47	3	..	2	1	..	13	..	2	..	..	2	..	..	..	2	1	..	1	..	..	..
New York	26	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	1	..	..	1	2	..	..	1	..	..	..	..	..	..	..	9	..	4	..	..	..	..	..	..	..	..	..	5	..	..	2	..	..	..	..	..	..
North Carolina	21	2	..	..	..	..	..	..	..	..	1	..	..	..	..	..	2	1	..	1	..	..	..	1	..	..	..	..	..	..	..	..	2	..	1	..	..	..	1	1	..	4	..	..	..	..	..	..	..	..	..	..	..
North Dakota	18	..	..	..	..	..	..	..	..	..	..	..	4	1	..	..	..	..	..	..	..	1	11	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..	..	..	..	..	..	..	..
Ohio	60	..	..	..	1	..	1	..	..	..	..	..	7	3	2	2	..	..	1	3	..	11	..	3	..	1	..	..	..	..	5	..	..	..	..	..	11	..	..	..	..	..	2	..	3	2	..	1	1	..	..	..	..
Oklahoma	90	..	..	19	1	..	..	..	..	2	..	..	1	1	5	5	..	..	..	..	..	..	17	14	..	3	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	6	9	..	..	1	..	4	1	..	..	..	..
Pennsylvania	17	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	2	..	2	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	2	..	..	1	2	..	3	..	..	1	..	..
South Dakota	6	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Texas	57	..	..	7	..	..	..	..	..	..	6	..	1	..	..	2	4	..	..	3	..	1	2	5	3	..	2	1	..	..	..	..	..	..	2	8	..	..	..	..	..	..	7	..	..	1	2	..	..	..	..	..
Utah	8	..	..	..	..	1	..	..	..	..	..	2	2	..	1	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..
Virginia	18	..	..	..	..	..	..	..	1	..	2	..	..	1	..	..	1	..	..	1	..	..	1	..	..	1	..	..	..	..	..	1	3	..	..	..	..	..	1	..	..	..	..	1	..	..	1	..	3	..	..	1	..	1
West Virginia	39	..	..	..	..	..	..	..	2	..	1	..	1	..	1	..	5	..	..	1	..	1	..	..	2	..	..	..	..	..	..	..	..	1	..	4	..	..	2	..	1	..	5	1	..	11	..	..	..	..	..	..
Wisconsin	27	..	..	1	..	..	..	..	..	..	..	..	11	..	1	..	..	..	..	..	..	2	2	..	2	..	1	..	..	..	..	..	..	3	1	1	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
Wyoming	14	..	..	..	..	..	..	..	..	..	..	..	9	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	1	..	..	2	..	1	1	..	..	..	..
Totals	1279	8	6	41	2	14	0	4	16	1	28	4	176	22	44	32	44	13	8	34	20	42	28	59	84	1	49	5	7	16	2	83	9	13	43	17	3	62	3	7	3	67	20	13	13	42	10	24	28	4	1	2	1	1
Number	....	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53

This table shows the number of physicians registered by each state through reciprocity during 1917. Read from left to right, it shows the total number of physicians registered through reciprocity in the state named and the number of such candidates coming from the states named at the top of the various columns. Read from above downward, the figures show the number of physicians who left the state named at the head of the column and went to each of the states named in the corresponding lines, and at the bottom, the total number of candidates leaving the state to go elsewhere. For example, read from left to right, the table shows that New Hampshire registered twelve candidates through reciprocity in 1917 and that, of these candidates 7 came from Massachusetts, 1 from New Jersey, and 2 each from Rhode Island and Vermont. Read from above downward the table shows that from New Hampshire 2 candidates went to California, 1 each to Kansas, Kentucky and Maine, and 2 to New Jersey, the total leaving the state to go elsewhere being 7. The line at the bottom shows in what states physicians who were registered through reciprocity obtained their original licenses. From Illinois 170 candidates, the largest number, obtained their original licenses. The next largest numbers came from Missouri with 84, New York with 83, Tennessee with 66, and Pennsylvania with 62.

TABLE L.—RECIPROCAL REGISTRATION IN FIVE YEARS (SHOWING WHAT STATES ISSUED ORIGINAL LICENSES)

STATE	Physicians Going from States Named During					Totals
	1913	1914	1915	1916	1917	
Alabama	2	1	1	4	8	16
Arizona	3	13	6	5	6	33
Arkansas	37	29	37	56	41	191
California	....	2	3	2	2	9
Colorado	12	25	15	8	14	74
Connecticut	2	1	3	1	0	7
Delaware	8	2	6	8	4	28
District of Columbia	17	22	18	20	16	93
Florida	1	2	4	2	1	10
Georgia	26	17	22	30	28	123
Idaho	....	5	1	5	4	15
Illinois	171	197	198	178	176	920
Indiana	33	44	43	27	22	169
Iowa	36	52	46	32	44	210
Kansas	32	42	39	33	32	178
Kentucky	43	35	48	40	44	210
Louisiana	13	10	16	16	13	68
Maine	9	11	12	13	8	53
Maryland	42	44	38	45	34	203
Massachusetts	2	7	19	22	20	70
Michigan	66	58	42	34	42	242
Minnesota	29	23	34	19	28	133
Mississippi	15	10	10	18	59	112
Missouri	61	98	104	93	84	440
Montana	....	3	1	1	1	6
Nebraska	34	37	50	28	49	198
Nevada	4	8	9	7	5	33
New Hampshire	7	3	4	11	7	32
New Jersey	10	19	22	17	16	84
New Mexico	8	9	5	2	2	26
New York	70	101	73	84	83	411
North Carolina	14	7	13	17	9	60
North Dakota	6	5	6	4	13	34
Ohio	50	71	47	51	43	262
Oklahoma	74	22	28	26	17	167
Oregon	3	3	2	2	3	13
Pennsylvania	86	86	79	74	62	387
Rhode Island	....	1	2	1	3	7
South Carolina	3	2	12	7	7	31
South Dakota	10	4	7	3	3	27
Tennessee	39	42	34	65	67	247
Texas	19	23	12	15	20	89
Utah	12	8	6	16	13	55
Vermont	11	21	25	15	13	85
Virginia	26	40	30	36	42	174
Washington	2	15	10	12	10	49
West Virginia	41	33	36	25	24	159
Wisconsin	28	41	29	32	28	158
Wyoming	4	3	5	1	4	17
Alaska, Hawaii, etc.	1	2	....	1	1	5
U. S. Army	1	2	1	....	....	4
U. S. Navy	....	....	....	1	1	2
U. S. P. H. Service	....	....	....	....	....	....
Natl. B. of M. E.	....	....	....	....	2	2
Canada	....	1	....	1	....	2
Foreign and Misc.	....	2	1	5	1	9
Totals	1223	1355	1314	1271	1279	6442

This table shows that 6,442 candidates were registered through reciprocity during the last five years. Registration by reciprocity gradually increased from 1905 to 1914, since which time there has been a gradual decrease as the total of physicians licensed by other methods has decreased. A study of the totals for the different states shows that of the 6,442 registered during the five years 920, or 14.3 per cent., obtained their original licenses in Illinois. The states furnishing the next highest numbers are Missouri, 440; New York with 411, Pennsylvania with 387, Ohio with 262, Tennessee with 247, and Michigan with 242. New York could easily lead Illinois but reciprocal relations have been established with only seven other states.

Seven states — Connecticut (regular board), Florida, Massachusetts, Montana, Oregon, Rhode Island, and Washington — do not have reciprocal relations and would not appear in this table except for the fact that some states, like California, Colorado, Delaware, New Hampshire, New Jersey, and North Carolina will accept a physician's credentials if satisfactory, whether the state issuing the orginal license returns the favor or not.

which accepts the license of another must be granted the same courtesy by the state issuing the original license. The term does not always apply, however, since some state boards —Arizona, California, Colorado, Delaware, Maryland, New Hampshire, New Jersey and North Carolina as examples—accept the physician's credentials, if satisfactory, whether or not the state board issuing the original license returns the favor. Had not reciprocal relations been established by the thirty-seven states shown in Table K, 1,269 physicians—many of whom have been in practice for ten or more years—would have been compelled to undergo the ordeal of a second trying examination.

Table L shows in what states were granted the original licenses of those who were registered elsewhere under the reciprocity provision during the last five years. Of the 6,432 physicians licensed through reciprocity during the last five years, the largest number coming from any one state was 914, who obtained their original licenses in Illinois. Although New York has a larger number of medical college graduates each year than Illinois,[1] only 411 physicians obtained original licenses in New York and registered elsewhere through reciprocity in the last five years. This is accounted for by the fact that Illinois has reciprocal relations with twenty-two other states, while New York has established such relations with only seven.

TABLE M.—STATE REQUIREMENTS OF PRELIMINARY EDUCATION

State Examning Board of	One Year of College Work		Two Years of College Work	
	Affects Students Matriculating	Affects All Graduates	Affects Students Matriculating	Affects All Graduates
Alabama	.....	....	1915-16	1919
Alaska	1914-15	1918	1918-19	1922
Arizona	1914-15	1918	1918-19	1922
Arkansas	1915-16	1919	1918-19	1922
California	1915-16	1919	.....	....
Colorado	1908-09	1912	1910-11	1914
Connecticut	1911-12	1915	.....	....
Delaware	.....	....	.....	....
Dist. of Columbia	.....	....	.....	....
Florida	1914-15	1918	1918-19	1922
Georgia	.....	....	.....	....
Idaho	.....	....	.....	....
Illinois	1915-16	1919	.....	....
Indiana	1910-11	1914	1911-12	1915
Iowa	.....	....	1911-12	1915
Kansas	1910-11	1914	1918-19	1922
Kentucky	1914-15	1918	.....	....
Louisiana	1915-16	1919	1918-19	1922
Maine	.....	....	.....	....
Maryland	1914-15	1918	1918-19	1922
Massachusetts	.....	....	.....	....
Michigan	1914-15	1918	1918-19	1922
Minnesota	.....	....	1908-09	1912
Mississippi	1915-16	1919	1919-20	1923
Missouri	.....	....	.....	....
Montana	1914-15	1918	1918-19	1922
Nebraska	.....	....	.....	....
Nevada	.....	....	.....	....
New Hampshire	1914-15	1918	1915-16	1919
New Jersey	1915-16	1919	1916-17	1920
New Mexico	1914-15	1918	1918 19	1922
New York	1917-18	1921	1918-19	1922
North Carolina	1914-15	1918	1918-19	1922
North Dakota	.....	....	1908-09	1912
Ohio	.....	....	.....	....
Oklahoma	1914-15	1918	1917-18	1921
Oregon	.....	....	.....	....
Pennsylvania	1914-15	1918	.....	....
Rhode Island	1914-15	1918	1918-19	1922
South Carolina	.....	....	1916-17	1920
South Dakota	1908-09	1912	1911-12	1915
Tennessee	1916-17	1920	1918-19	1922
Texas	1914-15	1918	.....	....
Utah	1913-14	1917	.....	....
Vermont	1913-14	1917	1918-19	1922
Virginia	1914-15	1918	1917-18	1921
Washington	1914-15	1918	1918-19	1922
West Virginia	1917-18	1921	.....	....
Wisconsin	.....	....	1915-16	1919
Wyoming	.....	....	.....	....

1. See Table 12, THE JOURNAL A. M. A., Aug. 18, 1917, p. 544.

IMPROVED STANDARDS OF LICENSURE

Table M shows the states which have adopted one or two years of college work as a minimum standard of preliminary education for those who seek the license to practice medicine in those states. The first and third columns show, respectively, when the one year and the two years of premedical college work affects students matriculating in medical colleges, and the second and fourth columns give the years in and after which all graduates are affected by the increased requirements. This table shows the remarkable progress which has been made in state board requirements since 1908, prior to which no state was requiring more than a four-year high school education as the minimum standard of preliminary education. As will be noted, there are now thirty-eight states which have adopted the higher standard, and of these, thirty require as a minimum *two years* of premedical college work. It is understood that in every instance the one or two years of collegiate work must have included courses in physics, chemistry and biology.

In Table N the advance in standards of licensure is shown for all states since 1904. The most marked increase is in regard to the requirement of collegiate work in thirty-eight states as referred to in Table M. The next greatest increase (thirty-five) is in the number of states—now forty—which are refusing to recognize low-grade medical colleges. Although, as shown in the third column, marked improvements have been made in state requirements for licensure, nevertheless, as indicated by the last column, there is still room for further improvement. The greatest needs are for a wider adoption of the requirement of the hospital intern year, the standard of two years of premedical college work, and a more general and larger use of practical tests in the examinations.

TABLE N.—ADVANCES IN STATE LICENSE REQUIREMENTS IN FOURTEEN YEARS

Requirement or Provision	States Having Provision for			States Still Having No Provision for
	1904	1918	Increase	
Preliminary Education—				
Any requirement	20	46	26	3[1]
A standard four-year high school education or higher	10	44	34	5[2]
One year or more of college work	0	38[3]	38	11
Two years of college work as a minimum	0	30[3]	30	19
That all applicants be graduates of a medical college	36	49	13	0
That all applicants undergo an examination for license	45	48	3	1[4]
Requirement of practical tests in the license examinations	1	16	15	33
Hospital intern year required	0	7[5]	7	42
Full authority by board to refuse recognition to low-grade colleges	14	43	29	6[6]
Boards refusing to recognize low-grade colleges*	5	40	35	9[7]
Reciprocal relations with other states	27	41	14	8[8]
Single boards of medical examiners	36	42	6	7[9]

* In three states, Arkansas, Connecticut and Florida, each of which has three separate boards, only the regular (nonsectarian) boards have refused recognition to low standard medical colleges.

1. District of Columbia, Massachusetts and Wyoming.
2. Idaho, Oregon and the states named in Footnote 1.
3. See Table M.
4. New Mexico.
5. Pennsylvania, 1914; New Jersey, 1916; Alaska, 1917; North Dakota and Rhode Island, 1918; Illinois, 1921, and Michigan, 1922.
6. District of Columbia, Idaho, Massachusetts, Oregon, Utah and Wyoming.
7. California, Nevada, Tennessee and the states named in Footnote 6.
8. Arizona, Connecticut, Florida, Massachusetts, Montana, Oregon, Rhode Island and Washington. To this list should be added the outlying territories of Alaska, Canal Zone, Philippine Islands and Porto Rico, which have no provision for reciprocity.
9. Multiple boards still remain in Arkansas, Connecticut, Delaware, District of Columbia, Florida, Louisiana and Maryland.

NATIONAL BOARD OF MEDICAL EXAMINERS

The National Board of Medical Examiners, which was organized in 1915, consists of fifteen members, including the Surgeon-Generals of the Army, Navy and Public Health Services, and one other representative of each of those services, three representatives of the state medical licensing boards and six members appointed at large. Up to December, 1917, three examinations had been held, the first in October, 1916; the second in June, 1917, and the third in October, 1917. The first two were held in Washington, and the third in

Chicago. At these three examinations altogether fifty applicants were examined, of whom thirty-six passed and fourteen failed, the percentage of failures being 28 per cent.

Date of Examination	Where Held	Total Examined	Passed	Failed	Percentage Failed
October, 1916	Washington	10	5	5	50.0
June 1917	Washington	12	9	3	33.3
October, 1917	Chicago	28	22	6	21.5
Totals		50	36	14	28.0

Twelve medical schools were represented and the results were as follows:

College	Total Examined	Passed	Failed	Per Cent. Failed
Howard University School of Med.	1	0	1	100.0
Atlanta Medical College	1	1	0	0.0
Northwestern Univ. Med. School	11	8	3	27.3
Rush Medical College	20	16	4	20.0
State Univ. of Iowa, Coll. of Med.	1	0	1	100.0
Johns Hopkins Univ. Med. Dept.	4	3	1	25.0
Med. School of Harvard Univ.	3	3	0	0.0
Univ. of Michigan Med. School	2	1	1	50.0
Columbia Univ. Coll. of P. and S.	1	1	0	0.0
Univ. & Bellevue Hosp. Med. Coll.	1	0	1	100.0
Univ. of Penn. School of Med.	4	3	1	25.0
McGill Univ. Faculty of Med.	1	0	1	100.0
Totals	50	36	14	28.0

Holders of certificates from the National Board will be registered without further examination in Colorado, Delaware, Idaho, Kentucky, Maryland, New Hampshire, North Carolina, North Dakota, Pennsylvania, Rhode Island and Vermont. When the permanency of the National Board is established and the high character of its examinations is more generally recognized, it is quite probable that its certificate will be recognized by the licensing boards of a larger number, if not of all states.

In Conclusion

In the gathering and publication of these statistics, the endeavor has been to give a fair presentation of facts, a knowledge of which is always beneficial. This annual presentation of the results of state license examinations has had a powerful influence on medical education and medical licensure in this country. We reiterate our acknowledgments to the state licensing boards for their ready cooperation and the complete reports which have been furnished. For the verification of all figures the reports and data furnished by medical colleges have been of much value. We have no doubt that the information here published will be of service not only to the medical colleges and to the state boards, but also to the public, since the end-result is better qualified physicians.

RECOGNITION OF EXAMINATION OF NATIONAL BOARD OF MEDICAL EXAMINERS

The National Board of Medical Examiners was organized in 1915. It is a voluntary organization, the object of which is to conduct examinations of physicians so thorough as to prove without doubt their qualifications for the practice of medicine. The value of its certificates, aside from a qualification of merit, depends on the recognition given to it by state medical licensing boards. Such recognition has already been given, or assured, by the licensing boards of the following eight states:

Colorado	Maryland	Pennsylvania
Delaware	New Hampshire	Rhode Island
Idaho	North Carolina	Vermont
Kentucky	North Dakota	

It is hoped that the certificate will eventually receive universal recognition.

A successful applicant may enter the Reserve Corps of either the Army or Navy without further professional examination if his examination papers are satisfactory to a board of examiners of these services. The certificate of the National Board will also be accepted as qualification for admission to the Graduate School of the University of Minnesota, including the Mayo Foundation.

The board consists at present of fifteen members, including the three Surgeon-Generals of the United States Army, Navy and Public Health services and one other representative from each of those services, two representatives of state licensing boards and seven members appointed at large. As soon as expirations of terms of office will permit, there are to be three representatives of state licensing boards and six members appointed at large. The three Surgeon-Generals serve as long as they hold their respective offices, and thereafter their places will be filled automatically by their successors. The other twelve members were divided by lot into three groups of four, their terms being two, four and six years. Hereafter all appointments will be for a term of six years. The personnel of the board at present is as follows:

Admiral William C. Braisted, Surgeon-General, United States Navy; Surgeon-General William C. Gorgas, United States Army; Surgeon-General Rupert Blue, United States Public Health Service; Commander Edward R. Stitt; Col. Louis A. LaGarde; Assistant Surgeon-General William C. Rucker; Dr. Victor C. Vaughan; Dr. Horace D. Arnold; Dr. Austin Flint; Dr. Walter L. Bierring; Dr. Henry Sewell; Dr. E. Wyllys Andrews; Dr. Louis B. Wilson; Dr. Herbert Harlan, and Dr. Isadore Dyer.

The examinations of the board are held in Washington, D. C., and other large cities. The subjects of the examination and their values are: anatomy, 100; physiology, 75; chemistry and physics, 75; pathology and bacteriology, 100; materia medica, pharmacology and therapeutics, 75; medicine, 200; surgery, 200; obstetrics and gynecology, 100; hygiene and sanitation, 50; medical jurisprudence, 25. The passing grade is 75 per cent.

The first two examinations were held in Washington, D. C., Oct. 16-20, 1916, and June 13-21, 1917, respectively. The third examination was held in Chicago, Oct. 10-18, 1917, and the fourth in New York City, Jan. 9-17, 1918. Examinations are now being held at Fort Oglethorpe, Ga. (April 8-19), and at Fort Riley, Kan. (April 8-25). The only fee is $5.00 for registration. There is no examination fee.

The educational requirements of applicants are (*a*) a four-year high school course; (*b*) two years of acceptable college work, including courses in physics, chemistry, biology and a modern language; (*c*) graduation from a medical school rated in Class A by the American Medical Association; and (*d*) a year spent in an acceptable hospital as an intern or in a laboratory. These requirements apply to graduates of medical schools in 1912 and thereafter. The board may accept equivalent credentials of applicants who graduated prior to 1912. Credentials must be presented to the board prior to the examination sufficiently early to permit of investigation.

For further particulars address Dr. J. S. Rodman, secretary, 310 Real Estate Trust Building, Broad and Chestnut streets, Philadelphia.

RECOGNITION OF GOVERNMENT EXAMINATION

The examination given under federal authority, which should be generally recognized by all state licensing boards as a qualification for license to practice medicine, is that given to medical officers of the United States Army, Navy, and Public Health Service. In fact, retired officers from the services mentioned are now eligible to receive licenses without further examination in

Alabama	Illinois	Virginia
California	North Dakota	Wisconsin
Colorado	Porto Rico	

The Simulation of Disease.—In an article in *Public Health Reports*, Nov. 9, 1917, A. G. Dumez, of the Public Health Service, gives a long list of diseases and skin lesions of various sorts which have been found to be artificially produced by means of various drugs, chemicals, and septic materials, by persons who attempt to evade military duty. The various troubles, some of the means by which they are produced and the methods of detection are set forth in the article. This information is important at the present time for the use of military medical examiners and exemption boards.

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SATURDAY, APRIL 13, 1918

STATISTICS OF STATE BOARD EXAMINATIONS

We publish this week, for the fifteenth consecutive year, tabulated statistics based on official reports of examinations conducted by state medical licensing boards. Reports have been received from all state boards; thus the statistics are complete.

IMPORTANCE OF THESE STATISTICS

The importance of these statistics may not be appreciated by the casual reader. In our fifty states there are fifty different medical practice acts, providing for sixty-one different licensing boards, no two of which entirely agree in the details either of the methods followed or of the standards enforced. In some states the public is well protected against illiterate and incompetent physicians; in others because of poor laws, or because of the existence of two or more independent and conflicting boards, the right to practice medicine may be secured even by grossly incompetent applicants. The publication of accurate information is the only way in this country to secure the correction of such conditions. The statistics published this year will, we hope, prove to be as effective toward this end as have the statistics of previous years.

FACTS REGARDING EACH STATE

The tables show for each state the number of candidates that appeared for examination, the colleges from which they graduated, the total number registered, and the total number and percentage of those rejected. The tables permit comparisons of the totals and the percentages of one state with those of other states. The figures show that if a state harbors a low-grade medical college, the people of that state are the principal sufferers. They also reveal conditions in a few states to which special attention should be called. For instance, 151 graduates of osteopathic colleges were admitted to the examinations in California, and seventy-three were licensed to practice medicine and surgery in that state! Again, two low-grade colleges, located at Kansas City, Mo., are not recognized by the Missouri state board and, hence, their graduates cannot secure licenses in that state. Nevertheless, thirty-five graduates of those colleges were examined by the Eclectic licensing boards of Arkansas and Connecticut, and twenty-eight (twenty-five in Arkansas and three in Connecticut) passed and were given licenses to practice medicine! The people of Arkansas and Connecticut evidently believe in sectarian boards; the facts just related may lead them to change their belief.

Table G shows that, as a rule, the examinations of state boards are more lenient toward graduates of medical schools located in the respective home state than toward graduates of colleges located in other states. Table H shows that the percentage of applicants rejected by some states is high, while in other states low percentages are rejected. A low percentage may mean that a state board is lax in its duty and has not established adequate safeguards against incompetent physicians. This may be determined by a study of Tables D and J. If a state board is admitting to its examinations graduates of any and all colleges, osteopathic or otherwise, then a high percentage of rejections would be expected. If, however, the board has refused to "recognize" low-grade colleges and is admitting to its examinations only the graduates of the better institutions, then a low percentage of failures might result even with thorough examinations.

Tables I, J and K show, respectively, the totals registered by all methods, the classification of the colleges in which most of the applicants licensed obtained their medical training, and the number of candidates licensed through reciprocity. Table M gives the standards of preliminary education that have been adopted by the different states, and the dates when the higher requirements are effective. Table N shows the remarkable progress that has been made in state board requirements during the last fourteen years. In brief, these statistics call attention to the kind of protection the people of each state have against incompetent or ill trained physicians.

FACTS REGARDING EACH COLLEGE

The statistics also give valuable information regarding medical colleges. Tables A and B show in what states graduates of each college were examined, and the results of the examinations. The results for several colleges would seem to indicate fair teaching methods, but this misconception is prevented by a knowledge of the facts set forth in Table D, which may show that the graduates of these colleges are refused examination by all but a few lenient states. Table E shows the results of the examinations for the group of colleges located in each state. Table F gives data regarding the colleges having fifty or more graduates examined during the year, and allows of comparison between colleges of nearly equal size. These

statistics throw an important side-light on the facts regarding medical colleges which are published in August each year in the Educational Number of The Journal.

TOTAL REGISTRATION IN ALL STATES

These statistics show the number of candidates coming not only from each medical school in this country and Canada, but also coming from Europe and abroad. An accurate record is given of the number, the source and the character of the medical training of those who are entering the practice of medicine each year in this country. Altogether, by examination and by reciprocity, 5,423 physicians were licensed in this country during 1917 — thirty-eight less than in 1916. Of these, 3,369, or 62.1 per cent., were graduates of Class A medical colleges; 988, or 18.2 per cent., were from Class B; 297, or 5.3 per cent., were graduates of Class C medical colleges, and 769, or 14.4 per cent., graduated prior to 1907, when the first classification of medical colleges was prepared.

INFLUENCE OF THESE STATISTICS

Excellent systems of record keeping are now in use by state boards in many states where formerly no records whatever were kept, or where the systems were far from perfect. This publication of accurate data each year has indicated other directions in which improvements were needed, and many advances have been made in medical licensure, as indicated in Table N. The statistics also have aided largely in the improvement of medical education. Before the publication of these statistics, medical faculties did not know how frequently their graduates failed at the state license examinations, and that knowledge has led to important developments in the colleges, particularly in the securing of better equipment and better teachers and in the adoption of better teaching methods.

COOPERATION MUTUALLY ADVANTAGEOUS

The collection and publication of these statistics were begun by The Journal in 1903; since 1905 that work has been continued and developed as one of the functions of the Council on Medical Education. During all these years the work has had the hearty support and cooperation of the secretaries of the various state licensing boards, who have furnished reports of their examinations. Every report received has been carefully checked with alumni lists furnished us by the medical colleges. By this cross-checking, errors are avoided, and when discovered the state boards are notified. Thus, not only are state records corrected, but also these statistics are made accurate and reliable. We express our acknowledgments for the splendid cooperation of both the state licensing boards and the medical colleges by which the publication of these statistics has been made possible.

THE BÁRÁNY TESTS IN THE EXAMINATION OF AVIATORS

Our readers are no doubt aware that up to this time great emphasis has been placed on the Bárány equilibrium tests in connection with the examination of aviators. Already, however, there seems to be developing a reaction against assigning too great importance to these tests.

As Fridenberg[1] recently said: "It has been generally assumed that a normal labyrinth is the sine qua non and the only essential for equilibration." As he points out also, while nothing has been said about vision in its relation to flying, the questions of hypersensitiveness to bright light, the sureness of the sense of motion, the acuity of vision in lowered illumination, the appreciation of contrast in form, color and light, a rapid and accurate judgment of distance, direction and size and depending on all of these, pace, are an "interesting and practical problem." A further evidence is the finding of Assistant Surgeons Parsons and Segar[2] of the U. S. Navy, that in many cases the best ratings as aviators were obtained by men who had made the worst showing under the Bárány tests.

Surgeon H. Graeme Anderson,[3] attached to the Royal Navy Service and as an adviser to the special medical administrative committee recently constituted by Great Britain, in an address before the Medical Society of London last month, presented the subject from every point of view based on his extensive experience. He corroborates the changing attitude toward the equilibration tests. "It has been assumed," he says, "that sound equilibration and muscle sense is essential to flying, so that the aviator would be conscious of his position in space, realize at once any deviations therefrom and correct these quickly. But in fog it has been found almost impossible to detect any deviation during flight. Time and again aviators coming out of the dark clouds or fog have found themselves flying one wing down, and it has been recorded that some have flown upside down without knowing it. Thus it is obvious that most of the impressions which control balance in flying come through the eyes." In fact, Surgeon Anderson, as an experiment, had himself blindfolded and his ears plugged with a telephonic connection to the pilot. The latter performed certain evolutions and Surgeon Anderson attempted to describe the position in space at various times. He was able to do this during the climbing and flying with right wing down and with the first spiral downward to the right. After that he was all at sea and thought the plane was climbing up continuously when in reality it was spiraling down to

1. Fridenberg, Percy: Visual Factors in Equilibration, Especially Aviation, The Journal A. M. A., April 6, 1918, p. 991.
2. Parsons, R. P., and Segar, L. H.: A Correlation Study of Bárány Chair Tests and Flying Ability of One Hundred Navy Aviators, this issue, p. 1064.
3. Anderson, H. G.: The Selection of Candidates for the Air Service, Lancet, London, 1918, 1, 395.

the left. He believes that this experiment goes far to prove that the aviator is for the most part dependent on impressions conveyed through the eyes for his sense of balance. He would not discard the equilibration, muscle sense and vestibular reactions, however, until further investigation has confirmed these points.

ACETYLSALICYLIC ACID, OR "WHAT'S IN A NAME?"

Under the caption "What's In a Name?" the current (April) issue of the *Journal of Industrial and Engineering Chemistry* has an editorial dealing with the nomenclatures—common and proprietary—of acetylsalicylic acid. The editorial was prompted by an article by Dr. Leech printed in the same issue. Replying to its own question:

"The answer to this question in so far as it applies to acetylsalicylic acid (popularly known as aspirin) is the difference between eighty-eight cents, the price the druggist must pay for every one hundred tablets of Bayer aspirin, and forty cents, the cost of an equally pure American product. Naturally, this difference in cost is passed on to the individual consumer.

"That no scientific justification exists for this difference in cost is clearly shown in the contribution by Dr. Paul Nicholas Leech, of the Chemical Laboratory of the American Medical Association, page 288 of this issue.

"On the other hand, the excess profit fully warrants the extensive and shrewdly-worded advertising campaign now in progress, a campaign which must eventually fail, because in the first place, it is contrary to the prevailing spirit of modern advertising, the motive of which is constructive rather than destructive, and, in the second place, it appeals merely to the temporary ignorance of the public at large, and has no basis in fact.

"We have been informed that the Custodian of Alien Enemy Property has taken charge of the stock interests of alien enemies in the company conducting this propaganda. Surely the Custodian will not care, even in a trustee capacity, to continue as a participant in a misleading campaign whose sole purpose is the perpetuation of a monopoly hitherto enjoyed under full patent protection."

The article to which the editorial refers is a somewhat technical one giving the findings of an examination made, at the request of the Council on Pharmacy and Chemistry, in the Chemical Laboratory of the American Medical Association by Paul Nicholas Leech, Ph.D., of various American brands of acetylsalicylic acid (aspirin). The result of the investigation may be summed up briefly in the statement that there are on the American market, made by American firms, several brands of acetylsalicylic acid that are just as good as, if not better than the Bayer product.

THE JOURNAL has called attention to the misleading propaganda on the part of the Bayer Company (Farbenfabriken vorm. Friedr. Bayer & Co.), in its attempt to perpetuate the monopoly granted under our inequitable patent laws. This is done by conveying the inference that the only pure acetylsalicylic acid on the market is that known as "Aspirin-Bayer." Physicians should again be reminded of the facts in the case of aspirin: Practically no other country in the world, and certainly not Germany, the original home of aspirin, would grant a patent either on acetylsalicylic acid, itself, or the process for making it. The United States granted both! As a result no one in this country except the Bayer Company could for seventeen years manufacture or sell acetylsalicylic acid either under its chemical name or under any other name. Nor was it permissible for hospitals or individuals to import it. While the monopoly held, the American people were compelled to pay from six to ten times as much for acetylsalicylic acid as were the people of Great Britain, France, Germany, Austria-Hungary, Denmark, Holland, Norway or Sweden. At a time when American druggists were compelled to pay 43 cents an ounce for acetylsalicylic acid as aspirin, just across the border in Canada it sold for about one-third the price.

About a year ago the Council on Pharmacy and Chemistry announced that "Aspirin-Bayer" had been deleted from New and Nonofficial Remedies while the scientific term, acetylsalicylic acid, was retained along with standards to insure its quality. The necessity for a standard becomes evident when it is remembered that acetylsalicylic acid is not yet an official drug, and its purity, therefore, is not subject to the control of the federal Food and Drugs Act. It is worth while at this time to remind physicians that several brands of acetylsalicylic acid (aspirin) have been found to comply with the standards set by the Council on Pharmacy and Chemistry and have been admitted to New and Nonofficial Remedies.[1] These, of course, are thereby subject to the control of the federal law to conform to the standard to which they profess.

Leech's report gives still greater weight to the suggestion that has been made for some time, viz., that physicians should prescribe acetylsalicylic acid under its scientific name rather than its proprietary name, even though, in the opinion of THE JOURNAL, the proprietary name, aspirin, has become common property since the expiration of the acetylsalicylic acid patent. Every consideration of public interest, of patriotism and of ordinary common sense should prompt physicians to specify acetylsalicylic acid in writing prescriptions.

1. The following brands of acetylsalicylic acid conform to the standards of the Council and are in New and Nonofficial Remedies:
"Aspirin—L. and F.": Lehn & Fink, New York.
"Acetylsalicylic Acid—Squibb": E. R. Squibb & Sons, New York.
"Acetylsalicylic Acid—Merck": Merck & Co., New York.
"Acetylsalicylic Acid—Milliken": John T. Milliken & Co., St. Louis.
"Acetylsalicylic Acid—M. C. W.": Mallinckrodt Chemical Works, St. Louis.
"Acetylsalicylic Acid—Monsanto": Monsanto Chemical Works, St. Louis.
"Acetylsalicytic Acid—P. W. R.": Powers-Weightman-Rosengarten Company, Philadelphia.

Tuberculosis in Asia.—Tuberculous affections are much more active in Siberia than in Central Asia, though much less than in European Russia. The disappearance of the native tribes, the Buriats, the Yakuts, the Tunguses and others, which is rapidly being brought about by many social, political and other causes, is hastened by tuberculous disease among them.—Frank G. Clemou, The Geography of Disease, p. 456.

Current Comment

A CALL FOR FIVE THOUSAND MORE MEDICAL OFFICERS

If there is any one lesson that this war has taught the world it is that of preparedness. If it were not that it stands for a principle which is axiomatic, the reiteration of the word "preparedness" would become monotonous. As it is, the tremendous importance of the principle undoubtedly has prompted the appeal of the Surgeon-General, which appears on another page, for five thousand more volunteers for the Medical Reserve Corps. At present there are approximately 18,300 members in the Corps and in addition, about 1,500 men have been offered commissions who have not yet accepted. Thus there is a sufficient number for present needs and for the immediate future. But it is the ultimate future — it is what may develop in four, in eight, in twelve, in eighteen months for which preparations must be made. It will be noticed that the Surgeon-General calls for five thousand more volunteers for the Medical Reserve Corps NOW. The call is made on the organized profession. It is up to us, to the medical profession of the United States, to respond to this call—the call of our government, of our country. The Association is preparing, and has about ready for publication, a survey of the response the medical profession has already made. This survey will show in what states, in what counties and in what communities the profession has shown its patriotism and its self-sacrificing spirit in responding, and in which communities it has lagged behind. THE ORGANIZED PROFESSION WILL RESPOND TO THE CALL OF THE SURGEON-GENERAL! So far as possible the response must be made with the consideration of the actual needs of the public — not as expressed by the individual physician himself, but by the profession as a whole in his community, county and state. Preparations are already in the making for conducting the "drive" for this new increment of five thousand physicians. Let every reader ask himself the question: Is it my duty to volunteer? And then let him answer it honestly!

THE PHYSICIAN AND THE AVIATION SERVICE

It has been appreciated both here and abroad that the aviator is a peculiar type — a "strange bird," as it were. It is therefore especially interesting to follow the development of the regulations concerning the physical examination of aviators and to study the large experience of our allies; this experience has apparently modified the point of view regarding the physical qualities associated with special aptitude for flying. That the great importance of this matter has been recognized in Great Britain is shown by the appointment of a special medical service for the air forces. The character of the men selected for this division of the British military services is a further recognition of the special consideration to be given to this subject.[1] The British Air Medical Service has had placed at its disposal special wards in naval and military hospitals in order to study the physiology and pathology of aviators. All of the medical arrangements of the air forces are to be centralized under its direction. Our man power has not been picked and repicked and selected to such an extent as has that of our allies. Our universities and colleges and athletic organizations contain thousands of men of the type specified as particularly adapted for aviation. In the first sorting of this material the experience of the European nations should be utilized so that in the future we shall not have to retrace our steps to make good unnecessary losses.

ENTRANCE CONDITIONS IN MEDICAL SCHOOLS

One of the problems which has lately come uppermost in dealing with medical schools is that relating to entrance conditions. The various phases of this problem are discussed in an article by Dr. Harley E. French[2] published in this issue of THE JOURNAL. Two state licensing boards recently have adopted rules absolutely prohibiting the admission of students with conditions. This rule is an extreme reaction against the practice in former years of a considerable number of medical colleges — and of a much smaller number at present — of admitting students with an overabundance of conditions. To adopt so extreme a measure, however, in an effort to regulate a few medical colleges which are unwilling voluntarily to enforce reasonable entrance requirements, would seriously interfere with the administration of requirements for admission in a large majority of the medical schools which are conscientiously enforcing them. As with any other regulation applying to medical schools, the rule relating to conditions should not be so rigid as to prevent the entrance examiners of our high grade medical schools — who, after all, are the highest authorities on this question — from dealing wisely with each individual student who applies for admission. As a matter of fact, certain students may meet the technical requirements of the rule who are not mentally qualified to take up the study of medicine. These would be accepted by the low-standard colleges, but would be rejected by the examiners of our leading medical schools. On the other hand, in the experience of medical deans, there are many students who have had more than the minimum amount of training required, who are mature and, in fact, are fully equipped mentally to enter on the study of medicine

1. The staff consists of the Director-General, Navy Medical Service, as chairman; the Director-General, Army Medical Service; a medical administrator of the air force; Flying Surgeon R. C. Munday, R. N., who receives the rank of Surgeon-General; an assistant medical administrator, Major C. B. Heald, who becomes lieutenant-colonel; a neurologist, Dr. Henry Head, F.R.S.; a physician, Surgeon-General H. D. Rolleston, R. N.; a surgeon, Capt. Raymond Johnson, R. A. M. C.; a physiologist, Dr. Leonard Hill; and Sir Walter Fletcher, F.R.S., secretary of the Medical Research Committee. Most of these men have already had some experience in connection with the medical work of the Royal Flying Corps. It is expected that temporary air force commissions will be granted to others, including Major J. L. Burley, Major H. C. T. Langdon and Surgeon H. Graeme Anderson, R. N., and Major Martin Flack, who have had special experience in this work.

2. French, H. E.: Entrance Conditions in Medical Schools, THE JOURNAL A. M. A., this issue, p. 1058.

but who lack a portion of the technical requirements specified in the rule. The latter, with conditions, will undoubtedly make better medical students than the former without conditions. Meanwhile, the decision as to whether conditions are to be allowed or not is necessarily a part of the problem of administering entrance requirements and should be left to those who are expert in that work. Given an experienced and intelligent entrance examiner — an essential of every approved educational institution — and he should be left free to administer the details of entrance qualifications, even to the allowing of conditions where that appears to be justified. Should the privilege be abused, the fact would soon be discovered by standardizing agencies, which could then withdraw their approval from the college until such abuses were corrected. All rules governing medical education which are worth while have emanated from the better grade of our teaching institutions. Any rule, therefore — including the rule in regard to conditions — which would prevent such action as our leading educational institutions may find desirable, would prevent the further development of educational ideals and methods.

RECIPROCITY IN MEDICAL LICENSURE

Thirty-nine states have established reciprocal relations with seven or more other states by which the license to practice medicine is accepted in lieu of a second written examination. Generally speaking, the methods by which such reciprocal relations are being administered at the present time tend toward the lowering of educational standards. There appear to be three distinct provisions under which such relationships are established. A few states take the ground that under the reciprocal agreements they must accept all candidates who apply for registration holding licenses from the other states. Under the widely differing standards held by the various boards, such an agreement would leave a wide open door whereby poorly educated physicians as well as others could secure a license in any of the states included under such an agreement, and the lowest educational standard enforced by any of the states would be the highest standard which could be effective. To limit the relationships to only a few states merely decreases the evil, since even the best regulated state board will occasionally register candidates who may not in all respects meet the requirements of some of the other reciprocating states. Furthermore, to limit reciprocal relationships to only a few states is to deprive the physicians of the state of the wider privileges which they should have through interstate reciprocity. Another basis for reciprocity, adopted by a larger number of states, provides that the license of the other state be accepted in lieu of the written examination only, and that the applicant must meet the educational and moral requirements of the state which accepts him under the reciprocal arrangement. In other words, each board retains the right to use its discretion in the acceptance of any candidate for registration under reciprocity. This plan is superior to the first one mentioned, in that it enables each board not only to establish relationships with a larger number of states, but also to uphold its educational standards for every applicant registered. Unfortunately, a few states, even with this arrangement, are not administering its provisions as strictly as might be desired. The third plan is that under which any well qualified physician who has been licensed in any state will be accepted no matter whether that state reciprocates or not. Eight states[1] have now adopted this plan and the number should be increased. It is the best provision for all parties concerned. The well qualified physician who desires to move from one state to another is not prevented from so doing through the lack of legal provision for reciprocal relations or through the arbitrary refusal of a licensing board to provide for such relationships; the state law is upheld since the board accepting such candidates lays strong emphasis on the moral and educational qualifications of the physician and, finally, this plan upholds the best interests of the public since only well qualified physicians may care for the sick and injured in the states which thus accept them.

DANGERS FROM CHLORIN SHORTAGE

A situation full of peril for many cities in this country has recently developed as a result of the interference with normal railway transportation due to war emergencies.[2] Several hundred cities and towns have become dependent on chlorin treatment for safeguarding their public water supplies. Even a temporary interruption of chlorination has been followed with disastrous results. We have called attention to several instances, notably in Milwaukee, Wis., and Quincy, Ill., in which stopping of chlorin treatment has led to serious outbreaks of water borne typhoid. It now appears that inability to obtain liquid chlorin as a sterilizing agent is becoming widespread. With singular lack of foresight a general order on February 1, designed to give some relief in the shipping of liquid chlorin from the manufacturing plants to the waterworks, failed to specify the return of the empty cylinders. In consequence it is said that empty cylinders are accumulating in railroad freight houses, in filtration plants and in scores of isolated places all over the country. As a result the manufacturers' reserve of empty cylinders is practically exhausted. A number of municipalities appear to have been on the verge of serious trouble from this cause. Shipments have been sent by express, chlorin has been borrowed from local chemical plants, and waterworks managers have resorted to a variety of emergency methods. The danger from cessation of chlorin treatment is all the more serious, because many cities have come to rely on this method for the treatment of rather badly polluted waters and have no other means of safeguarding the quality. During the years the chlorin treatment has been in use, the pollution of some of these supplies has certainly not lessened, so that any interruption of the treatment may be fraught with exceedingly serious consequences. The situation deserves immediate attention at Washington.

1. These states are Arizona, California, Colorado, Delaware, Maryland, New Hampshire, New Jersey and North Carolina.
2. Engineering News-Record, April 14, 1918, p. 688.

Medical Mobilization and the War

A CALL TO THE AMERICAN MEDICAL ASSOCIATION

WAR DEPARTMENT
OFFICE OF THE SURGEON-GENERAL
WASHINGTON

From: The Surgeon-General.
To: American Medical Association. **April 3, 1918.**
Subject: Medical Reserve Corps.

1. A memorandum of plan has recently been submitted to the Secretary of the American Medical Association for the utilization of the organization and machinery of the Association, in addition to the activities of the other bodies, viz., the Medical Section of the Council of National Defense and the different sections and organizations of the American Medical Association for the purpose of securing future increment to the Medical Reserve Corps and for keeping the numerical strength of the Corps up to the requiments of the service.

2. This plan contemplates a close cooperation between the office of the Surgeon-General and the officials of the American Medical Association, through the officials of the different state and county medical societies and through the different section organizations of the American Medical Association.

3. The present needs of the service will require all of the officers of the Medical Reserve Corps who have received their commissions and who are ready for active service. The additional increase in the Army during the next few months will probably necessitate the service of 5,000 physicians who as yet have not made application for a commission in the Medical Reserve Corps.

4. Under the present authorization for the Army it is estimated that the Medical Reserve Corps will need a steady increase of at least 2,500 applicants a year during the continuance of the war, for the purpose of replacements due to casualties, resignations and discharges, and to provide a medical personnel for organizations not at this time authorized. Under the present arrangement the Surgeon-General is authorized to maintain a strength of 3,600 medical officers in the training camp for medical officers for the purpose of instruction.

5. It is earnestly desired that the interests of the civil communities be conserved as far as possible and that no enlistments in the Medical Reserve Corps be made that would work serious hardship upon any community, manufacturing concern or other civil activity by taking from such community, manufacturing concern or other civil activity, physicians whose services are needed for the efficient and competent care of the civil population or the employees of large concerns.

6. To this end the department desires the closest cooperation and assistance of the American Medical Association, its officers and its allied organizations, believing that through its organizations the additional increment to the Medical Reserve Corps can be most satisfactorily obtained and the necessary increment for replacements be secured without in any way depriving any community of physicians whose services are necessary to its welfare and without depriving any manufacturing or other concern of its medical personnel when such personnel cannot be spared.

7. It is believed that by working through the Association and the subordinate bodies of the state and county medical societies, the best possible results can be obtained and the needs of the service can be supplied with competent and efficient professional men to meet not only the present necessities of the service, but to supply its future needs in the way of officers for the Medical Reserve Corps.*

8. In making request of the American Medical Association for its cooperation in this great work, I am appreciative of the very valuable assistance which has been rendered the department by the Association in the past and feel well assured that with the cooperation of the American Medical Association the department will in no way be handicapped for lack of competent, efficient medical officers for its Reserve Corps.

W. C. GORGAS, Surgeon-General, U. S. Army.

Officers Needed for Regular Medical Corps

There are at present approximately 650 vacancies in the regular Medical Corps of the Army, and examinations are being held throughout the country on the first Monday of each month to secure men for these positions. Full information concerning the examination may be procured on application to the Surgeon-General, Washington, D. C. The qualifications have been given many times in THE JOURNAL, but in order to save unnecessary correspondence the following essential qualifications are repeated:

QUALIFICATIONS

The applicant must be a citizen of the United States between 22 and 32 years of age, a graduate of a medical school legally authorized to confer the degree of doctor of medicine, of good moral character and habits, and shall have had at least one year's postgraduate hospital internship. There are numerous attractions to this service as a career; the greatest inducement, however, at this time is the country's great need for men to fill these vacancies.

* NOTE.—An application blank and a list of the examining boards will be sent by THE JOURNAL on request.

Personnel of the Medical Department

For the week ending April 5, 1918, the personnel of the Medical Department of the Army included:

MEDICAL CORPS: 838, including 1 major-general, 66 colonels, 102 lieutenant-colonels, 175 majors, 2 captains and 492 lieutenants.

MEDICAL RESERVE CORPS: 18,279, including 1,135 majors, 4,310 captains and 12,834 lieutenants. On active duty: 15,388, including 1,036 majors, 3,801 captains and 10,551 lieutenants.

MEDICAL CORPS, NATIONAL GUARD: 1,212, including 16 lieutenant-colonels, 251 majors, 151 captains and 794 lieutenants.

MEDICAL CORPS, NATIONAL ARMY: 100, including 3 brigadier-generals, 11 colonels, 78 lieutenant-colonels and 8 majors.

DENTAL CORPS, 209; DENTAL RESERVE CORPS, 5,182, of whom 1,358 are on active duty; DENTAL CORPS, N. G., 259; VETERINARY CORPS, 18; VETERINARY RESERVE CORPS, 1,428, of whom 784 are on active duty; VETERINARY CORPS, N. G., 53; VETERINARY CORPS, N. A., 347; SANITARY CORPS, 1,032, and AMBULANCE SERVICE, 151, constitute the remainder of the commissioned personnal.

The DISCHARGES in all branches of the service to date are:

Causes	Number MRC	MC,NG	DC,NG	San. C.
Physical disability	502	36	6	4
Inaptitude	190	14	0	1
Other branches of the service.	428	9	2	41
Domestic troubles	50	1	0	1
Resignations	143	44	5	8
Needed by the community	35	1	0	0
Deaths	43	3	0	0
Dismissals	3	2	0	0
	1,394	110	13	55

Medical Military Legislation

The House Committee on Military Affairs has favorably reported the bill (S. 3863), which passed the Senate, to provide quarters or commutation thereof to commissioned officers in certain cases.

Medical Officers Wounded in Action

The following medical officers from Pennsylvania are reported as recently wounded in action: Lieut. John B. Nutt, formerly an intern of the University of Pennsylvania Hospital and a practitioner of Williamsport, Pa.; and Capt. Edward B. Hodge and Lieut. Henry K. Diller with the Pennsylvania Base Hospital Unit No. 10, which is under British command.

Transportation of Wounded Soldiers

According to the *Army and Navy Register*, the question of hospital ships in connection with the return of wounded soldiers from abroad has been settled, and the Navy Department has taken charge of the transportation on returning transports. The transports will not be fitted out as hospital ships, but the sick bay is to be increased. The *Army and Navy Register* states that there has been suggested a possible objection to using transports in that they do not have the protection of the Geneva cross and that General Gorgas realizes that there will be a great deal of criticism if one of these transports, loaded with sick and wounded, is sunk. It states, however, that he believes the large transports should be made use of for comfort and real safety, as it is now well known that the Germans do not recognize any hospital ship flags.

Hospitals for Reconstruction of Disabled Soldiers

It is announced that the following hospitals will be used in beginning the work of physical reconstruction: General Hospital No. 2, Fort McHenry, Md.; General Hospital No. 3, Colonia, N. J.; General Hospital No. 4, Fort Porter, N. Y.; General Hospital No. 6, Fort McPherson, Ga.; General Hospital No. 7, Roland Park, Baltimore; General Hospital No. 9, Lakewod, N. J.; General Hospital No. 13, Dansville, N. Y.; General Hospital No. 14, Fort Oglethorpe, Ga.; Army and Navy General Hospital, Hot Springs, Ark.; Walter Reed General Hospital, Takoma Park, Washington, D. C.; Letterman General Hospital, San Francisco; Base Hospital at Fort Des Moines, Iowa; Base Hospital at Fort Riley, Kan.; Base Hospital at Fort Sam Houston, Texas.

The hospital at Fort McHenry is now being constructed, and work is under way connecting several structures with large wooden corridors about 15 feet in width. The administration building is a modern two story stone structure at present occupied by the staff of Major Purnell, commanding officer. A Red Cross house, under the direction of the Baltimore chapter of the Red Cross is also being built at this point. This building will be in the shape of a Greek cross, and the site selected is a high point overlooking the bay. It will contain a sun parlor, diet kitchen, reception room, library, large assembly room and other accommodations for convalescent soldiers. Major Wilson Henderson is in charge of the rehabilitation work at the reconstruction hospital.

It is understood that insane patients will be cared for at General Hospital No. 4, Fort Porter, N. Y.; the blind and deaf at General Hospital No. 7, Roland Park, Baltimore, Md.; epileptics and neurotics at General Hospital No. 13, Dansville, N. Y.; and special provisions made for amputation work at Walter Reed and Letterman Hospitals.

DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

From Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending March 29, 1918

1. ANNUAL ADMISSION RATE PER 1,000 (DISEASE ONLY):
   - All Troops 1,522.0
   - National Guard Camps 1,103.5
   - National Army Camps 1,814.7
   - Regular Army 1,513.8
2. NONEFFECTIVE RATE PER 1,000 ON DAY OF REPORT:
   - All Troops 49.4
   - National Guard Camps 39.1
   - National Army Camps 58.7
   - Regular Army 44.4
3. ANNUAL DEATH RATE PER 1,000 (DISEASE ONLY):
   - All Troops 9.8
   - National Guard Camps 3.6
   - National Army Camps 14.0
   - Regular Army 10.1

NEW CASES OF SPECIAL DISEASES REPORTED DURING THE WEEK ENDING MARCH 29, 1918

Camps	Pneumonia	Dysentery	Malaria	Venereal	Measles	Meningitis	Scarlet Fever	Deaths	Annual Admission Rate per 1,000 (Disease Only)	Noneffective per 1,000
Wadsworth	2	..	..	14	8	1	4	1	628.4	22.3
Hancock	...	..	..	24	5	..	1	4	413.2	26.2
McClellan	5	..	1	17	...	1	...	1	838.4	29.6
Sevier	6	..	1	15	2	..	...	1	1,044.9	37.5
Wheeler	4	..	4	36	...	..	...	4	773.7	36.3
Logan	8	..	..	45	4	1	...	4	1,060.0	34.2
Cody	5	..	..	10	...	..	1	5	673.7	30.8
Doniphan	11	..	..	46	...	..	...	3	1,981.3	44.5
Bowie	23	..	1	35	...	..	...	2	2,534.6	67.0
Sheridan	2	..	..	14	...	..	1	1	438.4	24.2
Beauregard	13	..	8	21	...	1	...	1	1,472.5	53.8
Shelby	...	..	..	25	1	..	1	2	1,117.2	50.9
Kearny	...	..	..	34	...	..	3	0	1,337.2	53.7
Devens	16	..	..	16	10	2	3	4	1,360.4	46.9
Upton	16	..	..	60	13	..	1	9	811.2	28.4
Dix	4	..	..	9	7	1	1	4	969.2	35.7
Meade	19	..	..	5	11	..	6	6	578.6	32.5
Lee	2	..	..	180	15	1	...	6	1,295.5	60.5
Jackson	17	..	..	31	22	6	...	6	1,730.4	56.4
Gordon	9	..	..	19	16	3	1	2	1,433.5	45.3
Sherman	16	..	..	53	2	..	20	6	1,328.5	53.2
Taylor	30	..	..	10	107	1	2	2	2,028.0	78.9
Custer	5	..	..	24	4	..	8	5	1,712.3	45.1
Grant	11	..	..	4	6	..	5	5	704.6	26.2
Pike	42	..	1	58	17	2	7	20	3,531.4	87.0
Dodge	44	..	..	25	83	2	12	15	2,741.1	52.8
Funston	24	1	..	10	11	2	3	18	1,679.2	82.2
Travis	25	2	8	39	38	3	...	6	4,799.2	90.1
Lewis	9	..	..	40	13	..	17	4	3,087.6	94.7
Northeastern Dept.	6	..	..	20	2	..	1	0	1,673.5	44.6
Eastern Dept.	3	..	1	23	15	1	...	5	1,170.3	30.0
Southeastern Dept.	11	..	2	34	30	5	4	3	1,199.1	50.2
Central Dept.	31	..	..	33	17	..	25	9	2,219.2	50.4
Southern Dept.	13	2	..	67	15	2	11	8	1,242.4	43.1
Western Dept.	9	..	..	48	9	1	7	2	1,747.8	37.9
Aviation, S. C.	62	2	..	165	105	6	56	30	1,462.5	41.4
Camp Greene	11	..	..	38	22	1	5	4	1,004.8	39.0
Camp Fremont	4	..	1	28	7	..	...	0	1,739.9	73.3
El Paso	...	..	..	11	3	..	1	0	932.8	7.4
Columbus Bks.	1	..	..	15	4	..	4	1	2,054.2	65.6
Jefferson Bks.	21	..	..	59	16	..	5	2	3,178.1	112.5
Fort Logan	5	..	..	3	7	..	2	2	2,562.9	78.5
Fort McDowell	5	..	..	2	11	..	3	2	2,329.8	51.9
Fort Slocum	3	..	..	13	3	..	...	4	2,085.7	45.1
D. B. Alcatraz	...	..	..	....	...	..	...	0	1,561.6	27.0
D. B. Fort Leavenworth	15	..	..	....	...	..	...	2	3,864.5	56.6
A. A. Humphreys	1	..	..	4	...	..	...	0	654.8	3.7
J. E. Johnston	1	..	..	24	4	..	1	1	1,152.3	39.2
Camp Merritt	43	..	2	45	8	..	12	9	1,303.4	57.8
Camp Stuart	40	..	..	29	6	1	3	5	2,170.4	53.4
West Point, N. Y.	...	..	..	....	...	..	...	1	1,484.8	9.3
Edgewood-Aberdeen	2	..	..	4	1	..	...	0	2,313.9	25.8
Provisional Depot for Corps and Army Troops	2	..	..	24	12	2	3	0	1,451.7	34.4
Camp Holabird	...	..	..	1	...	..	...	0	6,246.2	3.0
Camp Raritan	...	..	..	....	2	1	...	0	.....	....
General Hospitals	1	..	1	31	2	1	...	2	.....	....
Nat'l Guard Depts.	2	..	..	8	2	..	...	3	.....	....
Nat'l Army Depts.	28	..	..	91	41	..	29	7	.....	....
Fort Thomas	4	..	..	6	2	..	..	0	1,573.3	64.4
Total (all troops)	692	7	31	1,745	741	48	269	249	1,522	49.4

ANNUAL RATE PER 1,000 FOR SPECIAL DISEASES

	All Troops in U. S., Week Ending Mar. 29, 1918	Regulars in U. S., Week Ending Mar. 29, 1918	National Guard, All Camps, Week Ending Mar. 29, 1918	National Army, All Camps, Week Ending Mar. 29, 1918	Expeditionary Forces, Week Ending Mar. 21, 1918
Pneumonia	31.7	43.4	13.0	34.9	46.4
Dysentery	0.3	0.5	0.0	0.3	0.5
Malaria	1.3	0.7	2.5	1.1	0.2
Venereal	74.3	87.2	55.4	70.4	59.0
Paratyphoid	0.0	0.0	0.0	0.0	0.2
Typhoid	0.0	0.0	0.0	0.0	0.0
Measles	31.5	37.7	3.3	45.3	8.9
Meningitis	2.1	2.5	0.6	2.8	3.5
Scarlet fever	11.4	17.9	1.8	10.4	22.6

NEWS OF THE CANTONMENTS

Thirty-First Division, Camp Wheeler, Macon, Ga.

APRIL 5, 1918.

PERSONAL

Major R. C. Turck has been promoted to lieutenant-colonel and transferred to Camp Doniphan, Fort Sill, Okla., where he will be division surgeon of the Thirty-Fifth Division, National Guard. The news reached him while sick in the base hospital, and was cheering to him as well as pleasant to his many friends, who were nevertheless sorry to see him leave the Thirty-First Division.——Major Job Patterson has returned from Camp Merritt.——Major Rugh of the orthopedic branch of the S. G. O., is organizing the orthopedic work, which had not heretofore been done.——Major O'Connel has returned from a visit to his family, where five of his children were sick.——A lieutenant of one of the regiments is about to be tried for making charges to enlisted men for administering salvarsan and other drugs.——A dental surgeon was recently tried and convicted of charging enlisted men for dental work.

SURVEYS

Major Arthur S. Pendleton expects to begin a second neurological survey of the troops soon. It is hoped that the frequent and various surveys with their resulting eliminations, will not reduce the division to zero, but one sometimes sees the vanishing point in the distance.

Another board on food conservation has arrived. Boards on various subjects continue to arrive and depart. It is presumed that they accomplish some useful purpose; but in some cases the effect is difficult to detect.

BASE HOSPITALS

There are now 679 patients in the base hospital and a total sick of but 688 in the division. There are now but eighteen cases of mumps, two of measles, one meningitis, no scarlet fever and 105 remaining cases of pneumonia. Most of the pneumonias are old convalescent cases. The sick rate is now down to 3.7 per cent., which is below the average in all camps.

INSPECTION

Lieutenant-Colonel McCormack, M. C., is expected to arrive soon for inspection of the sanitary train. Although the sanitary train is one of the most important organizations in the division, yet in six months it has never been inspected by any officer outside the division. Much benefit is expected from Colonel McCormack's visit.

Eighty-Fourth Division, Camp Zachary Taylor, Louisville, Ky.

APRIL 8, 1918.

The system of regimental guards over sick prisoners at the base hospital has been discontinued. The camp adjutant daily details a guard consisting of six privates, a sergeant and a corporal, who report at 4 o'clock each afternoon to Lieut.-Col. Will L. Pyles at the hospital. They will be used to guard prisoners sick in the wards and will be rationed and quartered at the institution during the twenty-four hours they are on duty.

COLONEL ALLEN EXONERATED

"Not guilty" was the finding of the general court martial that tried Lieut.-Col. John H. Allen, medical officer of Camp Zachary Taylor, charged with negligence in the death of Private Otha Murray of Cumberland County, and also charged with showing disrespect toward his commanding officer. The findings of the court martial were approved by the reviewing authorities and Colonel Allen is permitted to continue in the same capacity at the local camp as he held before the charges were brought against him.

The court convened on March 5, at which time Colonel Allen and several other officers of the Medical Corps were called to the witness stand. The charges against Colonel Allen stated that he acted without the proper investigation and regard for the health of Private Otha Murray in recommending his discharge from the base hospital. During the trial attempts were made by the prosecution to prove that the accused had not investigated the case of Otha Murray and had, without taking steps to learn the man's condition, asked for his release from the base hospital. No condemning evidence was brought out against the colonel on these grounds.

Eighty-Sixth Division, Camp Grant, Rockford, Ill.

APRIL 6, 1918.

The sick rate at this camp is probably the lowest of any National Army camp in the country. The noneffective rate was 2.61 and the annual admission rate was 704 per thousand.

Major McKinney has gone East on a short trip and Captain Hutchings is taking his place as sanitary inspector pro tem.

QUARANTINE

Patients with mumps are not quarantined in this camp, although those suffering from other contagious diseases are being quarantined. The quarantine is maintained by Company Guard: that is, an armed sentry is placed at every entrance, preventing any one but authorized officers from entering or leaving the building. However, the company may, and should be, taken out for drill as a unit, but must not be mixed up with any other organization at drill or at any other time. Members of the company are not permitted to attend any public entertainment.

ORTHOPEDIC UNIT

An orthopedic unit for field work has been established in one of the buildings of the Depot Brigade in charge of Lieutenant McCormack. The unit was established by Major Peters, visiting orthopedist from the Surgeon-General's Office, and it is just beginning operation. The main object is to examine and care for deficient feet by means of proper exercises under the guidance of competent orthopedists. A chiropodist is attached to the unit.

CORRECTION

Under "Orders to Officers of the Medical Reserve Corps," issue of March 23, appears this order: *Honorably discharged* on account of physical disability existing prior to his entrance into the service, Lieut. CARL R. DOTEN, Providence, R. I. This order should read: *Honorably discharged* on account of physical disability incident to the service.

ORDERS TO OFFICERS OF THE MEDICAL CORPS AND OF THE MEDICAL CORPS OF THE NATIONAL ARMY

To Camp Cody, Deming, N. M., base hospital, from San Francisco, Major JOHN B. ANDERSON. For duty, from Fort Snelling, Capt. HARRY J. O'BRYAN.

To Camp Crane, Allentown, Pa., for inspection, and on completion *to his proper station*, Col. EDWARD L. MUNSON. For duty, from Camp Doniphan, Lieut.-Col. WILLIAM T. DAVIDSON; from Camp Upton, Lieut. HARVEY E. WEBB.

To Camp Dix, Wrightstown, N. J., *Camp Merritt, N. J., Camp Upton*, Long Island, N. Y., *Lakewood, N. J.*, for duty, and on completion *to his proper station*, Col. FREDERICK F. RUSSELL. *To Camp Dix*, base hospital, from San Francisco, Major ROBERT H. WILDS.

To Camp Dodge, Des Moines, Ia., base hospital, from San Francisco, Major FLETCHER C. McFARLAND.

To Camp Forrest, Chickamauga Park, Ga., for duty, from Camp Wheeler, Lieut. ALBERT E. PAGAN.

To Camp Fremont, Palo Alto, Calif., base hospital, from Camp Fremont, Major RAY W. BRYAN.

To Camp Greene, Charlotte, N. C., base hospital, from Camp Greene, Lieut. LEON H. CORNWALL.

To Camp Lee, Petersburg, Va., base hospital, from Camp Sherman, Major ALEXANDER W. WILLIAMS.

To Camp Lewis, American Lake, Wash., base hospital, from San Francisco, Lieut.-Col. WILLIAM R. DAVIS.

To Camp Logan, Houston, Tex., *Camp MacArthur*, Waco, Tex., *Camp Bowie*, Fort Worth, Tex., for consultation, and on completion *to his proper station*, from Camp Beauregard, Lieut.-Col. GEORGE F. LULL. *To Camp Logan*, base hospital, from Camp Logan, Lieut. ALBERT AISENSTADT.

To Fort MacArthur, Calif., for physical examination to determine his fitness for active duty, and on completion *to his home*, Capt. CLARENCE E. LAUDERDALE.

To Camp Meade, Annapolis Junction, Md., base hospital, from Surgeon-General's Office, Lieut.-Col. HOWARD H. JOHNSON. As orthopedic surgeon, from Camp Devens, Lieut. EDWARD B. MACON.

To Camp Sevier, Greenville, S. C., base hospital, from Fort Myer, Major JULIAN M. CABELL.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Camp Sherman, Lieut.-Col. EDWARD G. HUBER.

To Camp Upton, Long Island, N. Y., base hospital, from Army Medical School, Lieut. CALVIN H. GODDARD.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Camp Jackson, Major JAMES D. JOHNSTON.

To Camp Zachary Taylor, Louisville, Ky., base hospital, from Fort Riley, Major LEONARD S. HUGHES.

To Corpus Christi, Tex., for special inspection and on completion *to his proper station*, Col. WILLIAM F. LEWIS.

To Fort Des Moines, Ia., base hospital, from Camp Sherman, Major LEOPOLD MITCHELL.

To Fort Ethan Allen, Vt., base hospital, from Camp Beauregard, Lieut.-Col. GEORGE F. LULL; from Fort Oglethorpe, Major WILLIAM B. ALLEN.

To Fort Jay, N. Y., for temporary duty, from Camp Upton, Lieut. FREDERICK E. HERPEL.

To Fort McHenry, Md., base hospital, from Fort Oglethorpe, Major WILLIAM D. HERBERT.

To Fort Oglethorpe for instruction, from Camp Beauregard, Major HOMER SCOTT.

To Fort Riley for duty, from Camp Crane, Major CHARLES L. GANDY; from Fort Riley, Major ROBERT H. DUENNER.

To Laurel, Md., for inspection, and on completion *to his proper station*, Col. PERCY M. ASHBURN.

To New Orleans, La., Charity Hospital, for instruction, and on completion *to their proper stations*, from Camp Sevier, Majors ALEX. M. BRAILSFORD, Jr., LARKIN SMITH; Lieuts. WILLIAM R. CROSS, JAMES H. S. MORISON.

To New York City for duty, and on completion *to his proper station*, Col. ROBERT E. NOBLE. For instructions, from Panama Canal Department, Lieut. DAVID N. W. GRANT.

To report in person to the commanding general, Western Department for duty, Lieut.-Col. EDWIN W. RICH; Major EUGENE L. SWIFT.

To Rochester, Minn., Mayo Clinic, as assistant director of course in war surgery and fractures, Major JAMES C. MASSON.

To Washington, D. C., for temporary duty in the Surgeon-General's Office, from Hoboken, Major HARRY N. KERNS.

Resignations of Major VAN BURAN KNOTT, and Lieut. CHARLES E. SCHWARTZ, accepted.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Camp Gordon, Atlanta, Ga., base hospital, Lieut. ROBERT C. BLACK, Birmingham.

To Camp Hancock, Augusta, Ga., for duty, from Camp Hancock, Capt. MACK ROGERS, Birmingham.

To Camp Jackson, Columbia, S. C., to examine the command for mental and nervous diseases, from Philadelphia, Lieut. TOOMBS LAWRENCE, Tuscaloosa.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieut. BENJAMIN J. LEWIS, Samson.

To Fort Oglethorpe for instruction, Lieut. WILLIAM R. K. BECK, Birmingham; from Fort Oglethorpe, Lieut. HENRY C. HARRIS, Birmingham.

Resignations of Lieuts. AUGUSTUS D. MATTHEWS, Ariton, and GEORGE F. LITTLEPAGE, Muscle Shoals, accepted.

Arizona

To Fort Riley for instruction, Lieut. LAWRENCE D. DUSCH, Superior.

Arkansas

To Canal Zone, Panama, Canal Department, for duty, from Fort Oglethorpe, Capt. DOWELL GANN, Jr., Little Rock.

To Fort Riley for duty, from Fort Riley, Lieut. FOSTER JARRELL, Huttig. For instruction, Lieut. CHARLES G. HINKLE, Batesville.

To New Orleans, La., Charity Hospital, for instruction, and on completion *to his proper station*, from Camp Sevier, Lieut. ARTHUR C. HANEY, Atkins.

To Rockefeller Institute for instruction in laboratory work and on completion *to Army Medical School* for duty, Lieut. JOHN S. WILSON, Plantersville.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. SYLVESTER DOGGETT, Bradford.

California

To Fort Ethan Allen, Vt., base hospital, Capt. ERNEST D. CHIPMAN, San Francisco.

To Fort Oglethorpe for instruction, from Chicago, Capt. EMIL P. THOLEN, Los Angeles.

To Fort Riley for instruction, Capts. LEROY M. WHITE, National City; JAMES R. REED, Pasadena; Lieuts. JOSEPH K. SMITH, Bakersfield; ERNEST H. PAPE, Berkeley; HENRY T. ROONEY, Colfax; DAVID B. ZBINDEN, Downey; BUDD ROBBINS, Hanford; ORRA C. HYDE, Lincoln; PHILIP J. CUNNANE, FRANK THOMAS, Los Angeles; HENRY A. STEPHENSON, CALVIN A. WALKER, San Francisco, WILLIAM J. MARNEY, Sebastopole. From Douglas, Ariz., Capt. WILLIAM L. GRANT, Los Angeles.

To Portland, Ore., Aviation Section, Signal Corps, for duty, Major SANDFORD B. WHITING, Los Angeles; Capts. WILLIAM T. LUM, Alameda; JULIAN L. WALLER, San Francisco; HUMPHREY P. PALMER, Vacaville; Lieuts. ALEXANDER D. McLEAN, Exeter; JAMES THORNTON, Los Angeles; CHARLES F. GRIFFIN, San Francisco.

To San Francisco, Calif., for instruction, and on completion *to Camp Lewis*, American Lake, Wash., base hospital, Lieut. ALBERT C. GERMANN, Los Angeles.

Honorably discharged, Lieut. CHARLES F. CURTIS, Los Angeles.

Resignation of Major GILBERT M. BARRETT, San Francisco, accepted.

Colorado

To Camp Cody, Deming, N. M., base hospital, Major JOHN W. AMESSEE, Denver; Lieuts. RAYMOND E. PEEBLER, Boulder; WILLIAM D. FLEMING, Denver; JOHN R. ESPEY, Trinidad; from Camp Bowie, Lieut. HAROLD G. MACOMBER, Denver; from Camp Cody, Major EDWARD F. DEAN, Denver; from Camp Dodge, Capt. AMOS L. BEAGHLER, Denver; from Camp Doniphan, Lieut. ARTHUR W. STAHL, Denver; from Camp Logan, Capt. OLIVER LYONS, Denver; from Denver, Capt. CUTHBERT POWELL, Denver; from Fort Logan, Capt. WILLIAM W. WILLIAMS, Denver; from Fort Riley, Major CHARLES D. STOUGH, Colorado Springs; Capt. WILLIAM C. FINOFF and Lieut. ALBERT W. DEWEY, Denver; from New York City, Capts. LEWIS H. McKINNIE, Colorado Springs; CYRUS L. PERSHING, Denver.

To Camp Doniphan, Fort Sill, Okla., base hospital, Major HARRY S. FINNEY, Denver.

To Camp Kelly, San Antonio, Tex., for duty, Capt. GEORGE H. CRUIKSHANK, Steamboat Springs.

To Fort Riley for instruction, Lieut. GORDON E. HEIN, Pueblo.

Connecticut

To Camp Shelby, Hattiesburg, Miss., base hospital, from Fort Oglethorpe, Capt. ROBERT D. ROLLER, Jr., Bridgeport.

To Camp Sherman, Chillicothe, Ohio, as commanding officer of base hospital, from Camp Sherman, Major LOUIS I. MASON, Willimantic.

To Camp Wadsworth, Spartanburg, S. C., as a member of a board to examine the command for tuberculosis, from Camp Meade, Lieut. ELLIOTT H. METCALF, Rockville.

To Fort Oglethorpe for instruction, Capt. ROBERT S. STARR, Hartford.

To Rockefeller Institute for instruction, and on completion *to Camp MacArthur*, Waco, Texas, base hospital, Lieut. HAROLD F. OWENS, Bridgeport.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. CHARLES J. GREENSTEIN, Meriden.

District of Columbia

To Camp Gordon, Atlanta, Ga., base hospital, from Camp McClellan, Lieut. JAMES H. ALLEN, Washington.

To Camp Meade, Annapolis Junction, Md., base hospital, from Fort Oglethorpe, Capt. JOHN B. PIGGOTT, Washington.

To Camp Zachary Taylor, Louisville, Ky., to examine the command for mental and nervous diseases, from Fort Thomas, Capt. JOHN J. MADIGAN, Washington. Base hospital, from Fort Oglethorpe, Lieut. RALPH H. DAVIS, Washington.

To Hoboken, N. J., for duty, Capt. WILLIAM M. HUNT, Washington.

Florida

To Camp Doniphan, Fort Sill, Okla., as division surgeon, from Camp Wheeler, Major RAYMOND TURCK, Jacksonville.

To Camp Gordon, Atlanta, Ga., base hospital, Lieut. ROBERT H. TRUMMELL, Muskogee.

To Camp Jackson, Columbia, S. C., for duty, from Camp Sevier, Capt. JOHN HALTON, Sarasota.

To Camp Meigs, Washington, D. C., for duty, from Camp Greene, Capt. MURDOCH L. CRUM, Bowling Green.

To Fort Oglethorpe for instruction, Lieut. STERLING E. WILHOIT, Hosford.

Georgia

To Atlanta, Ga., for duty, from Fort Oglethorpe, Lieut. CHESTER O. MIDDLEBROOKS, Bogart.

To Camp A. A. Humphreys, Accotink, Va., for duty, from Fort Oglethorpe, Lieut. CARL B. WELCH, Tifton.

To Camp Gordon, Atlanta, Ga., base hospital, Major EDWARD C. DAVIS, Capt. EDGAR G. BALLENGER, Lieut. JOHN S. DEER, Atlanta; from Arcadia, Lieut. DAN H. DUPREE, Athens; from Camp Beauregard, Lieut. CECIL STOCKARD, Atlanta; from Camp Gordon, Major FRANK K. BOLAND, Capt. CHARLES R. DOWMAN, Atlanta; from Camp Hancock, Capt. ALLEN H. BUNCE, Atlanta; from Camp Jackson, Lieut. JAMES A. McALLISTER, Atlanta; from Camp Lee, Lieut. LESLIE L. BLAIR, Marietta; from Fort Oglethorpe, Lieuts. JOSEPH R. BARFIELD, EDGAR E. GREENE and HENRY C. SAULE, Atlanta; from New York City, Capt. WELDON E. PERSON, Atlanta.

To Camp Jackson, Columbia, S. C., for duty, from Camp Jackson, Capt. FRANCIS X. MULHERIN, Augusta.

To New Orleans, La., Charity Hospital, for instruction, and on completion *to Camp Beauregard*, Alexandria, La., base hospital, Major WILLIAM A. CHAPMAN, Cedartown.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieuts. GROVER C. COLE, JAMES J. MARTIN, Atlanta.

Idaho

To Fort Bliss, Tex., for duty, Lieut. ROY W. QUICK, Weston.

To Fort Riley for duty, from Fort Riley, Lieut. JOHAN C. WIIK, Moscow.

Illinois

To Camp Grant, Rockford, Ill., to examine the command for mental and nervous diseases, from Ann Arbor, Lieut. WILLIAM J. RILEY, Chicago. With the board examining the troops for cardio-vascular diseases, Lieut. WILLIAM H. TAYLOR, Chicago.

To Camp Greene, Charlotte, N. C., for duty, from Fort Oglethorpe, Lieut. JOSEPH C. BROOKHART, Greenup.

To Camp Hancock, Augusta, Ga., for duty, from Fort Oglethorpe, Lieut. CHARLES C. RENTERO, Chicago.

To Camp Kelly, San Antonio, Tex., for duty, Lieuts. GEORGE S. MICKELSON, Chestnut; FRANCIS V. GARBERRY, Chicago.

To Camp McClellan, Anniston, Ala., base hospital, from Camp Forrest, Lieut. WALTER S. CONN, Naperville.

To Camp Meade, Annapolis Junction, Md., base hospital, from Fort Oglethorpe, Lieut. IRWIN H. CUTLER, Chicago.

To Camp Pike, Little Rock, Ark., base hospital, Lieut. WADE H. SCHOTT, Alexander.

To Camp Travis, Fort Sam Houston, Tex., to examine the command for mental and nervous diseases, from Fort Riley, Lieut. JAMES K. POLLOCK, Elgin.

To Camp Upton, Long Island, N. Y., for duty Lieuts. WILLIAM RAIM, Chicago; PHILIP F. ROBERTS, Osceola. With the board examining the troops for cardio-vascular diseases, from Army Medical School, Lieut. FRED M. SMITH, Chicago.

To Camp Wadsworth, Spartanburg, S. C., base hospital, Lieut. HAYES W. CARLIN, Chicago.

To Camp Wheeler, Macon, Ga., base hospital, from Camp Beauregard, Capt. GEORGE H. MILLER, Chicago.

To Camp Zachary Taylor, Louisville, Ky., base hospital, from Camp Custer Capt. PAUL E. BAIN, Pleasant Plains; from Camp Grant, Lieut. PHILIP LEWIN, Chicago.

To Cape May, N. J., for temporary duty, from Camp Sherman, Lieut. CHARLES A. BURKHOLDER, Chicago.

To Fort Brady, Mich., for duty from Camp Pike, Capt. CHARLES J. POOLE, Mt. Vernon.

To Fort Ethan Allen, Vt., base hospital, Lieut. IRA C. COPELAN, Springfield; from Camp Upton, Lieut. GEORGE E. O'GRADY, Chicago.

To Fort Leavenworth, Kan., for duty, from Fort Riley, Capt. CLARENCE W. CHAPIN, Weldon.

To Fort Oglethorpe for instruction, Lieuts. GEORGE E. ARZT, EDWARD F. DOMBROWSKI, EVAN H. M. GRIFFITHS, JOHN G. O'MALLEY, FRANCIS E. TURGASEN, Chicago; CHARLES H. BEADLES, Morrison; ARTHUR S. CAMPBELL, Oak Forest; GLADSTONE C. CONKLIN, Springfield; from Camp Zachary Taylor, Lieut. MAT J. MINKER, Chicago; from Chicago, Lieuts. SAMUEL C. FLEMING, HARRY E. VANDERBOGART, Chicago; from duty as a private at Fort Oglethorpe, Lieut. CONSTANTINE J. KOURSOUMIS, Chicago.

To Fort Riley base hospital, Capt. JOHN C. GUNN, Belleville. For instruction Capts. JAMES A. KLEINSMID, Aledo; FRANK CARY, EDWARD M. MIKKELSON, SAMUEL D. NIXON, ROGER T. VAUGHAN, Chicago; IRA J. SCOTT, Danville; BRUCE D. PARRISH, Mattoon. Lieuts. ANDREW J. CASNER, Bloomington; GEORGE R. BLACKSTONE, Bushnell; HARVEY H. ROGERS, Canton; JOHN M. McSPARIN, Carrier Mills; JESSE H. McINTOSH, Chambersburg; FRANKLIN W. PALMER, Chatsworth; JAMES N. BUCHANAN, EDWARD A. CORCORAN, JOSEPH EISENSTAEDT, CARLETON A. HARKNESS, DANIEL B. HAYDEN, ARTHUR W. OGDEN,

ROLAND H. PHILLIPS, WILLIAM RUPP, WALTER L. SACHTLEBAN, Chicago; EDWARD W. SIKES, Freeport; CARL H. NIELSEN, Grant Park; OLIVER I. STATLER, Huntley; ROBERT N. CANADAY, Irving; JOHN W. KROHN, Joliet; JOHN W. GEIGER, La Salle; WALTER A. BRESSNER, Latham; PAUL G. POMEROY, Lawrenceville; ORRIS M. THOMPSON, LeRoy; MALFRED HAMM, Madison; DAUSA D. HARTWELL, Marion; AUGUST H. ARP, HENRY S. BENNETT, Moline; SAMUEL P. COLEHOUR, Mt. Carroll; JOHN E. BURNS, New Dennison; BURTON W. BIVINS, Oak Park; WALTER J. PRICE, Peoria; NORMAN W. CONNAWAY, Sheridan; LOUIS SCHWANBACK, Varna; from Fort Riley, Lieuts. CHARLES M. FOX, ELMER A. GUNDERSON, and WILLIAM ISRAELSON, Chicago.

To Fort Sill, Okla., for duty, from Fort Riley, Major WALTER H. ALLPORT, Chicago.

To Hoboken, N. J., base hospital, from Ann Arbor, Major DEAN D. LEWIS, Chicago.

To Lakewood, N. J., for conference, and on completion *to his proper station*, Major PAUL B. MAGNUSON, Chicago.

To Millington, Tenn., Park Field, from Camp Pike, Lieut. ROBERT B. MILLER, Rock Island.

To Mineola, Long Island, N. Y., for duty, from Fort Riley, Lieut. ROBERT F. KNOLL, Chicago.

To New York City for duty, and on completion *to his proper station*, Major HARRY E. MOCK, Chicago.

To San Francisco, Calif., for instruction, and on completion *to his proper station*, from Camp Lewis, Lieut. WILLIAM P. RICE, Chicago.

To Washington, D. C., for duty in the Surgeon-General's Office, Lieut. ALFRED S. BAILEY, Chicago.

Honorably discharged, Lieut. THEODORE A. KREUSER, Chicago. On account of physical disability existing prior to entrance into the service, Lieuts. ERNEST C. ASBURY, O'Fallon; WALTER D. MURFIN, Vernon.

Resignation of Lieut. HOSEA J. NICHOLS, Quincy, accepted.

Indiana

To Camp Meade, Annapolis Junction, Md., base hospital, from Camp Devens, Capt. HARRY S. OSBORNE, Glenwood.

To Camp Sherman, Chillicothe, Ohio, to examine the command for mental and nervous diseases, from Ann Arbor, Lieut. CLYDE C. ITLER, New Castle.

To Camp Upton, Long Island, N. Y., for duty, Lieut. JOHN G. HUBER, Evansville.

To Chicago, Ill., for instruction, Lieut. HELMUTH C. W. ERNST, East Chicago.

To Fort Oglethorpe for instruction, Capts. MITCHELL C. CLOKEY, Huntington; DAVID COHEN, Jeffersonville; Lieuts. MARSHALL B. CATLETT, Fort Wayne; JOHN B. TALMAGE, Lagoda; HAROLD S. HATCH, Oaklandon; C. SAMUEL WHITE, Rosedale; AUGUST O. TRUELOVE, Warsaw; DANIEL E. LYBROOK, Young America.

To Fort Riley for duty, from Camp Pike, Lieut. CHARLES H. JONES, Indianapolis.

To Rockefeller Institute for instruction and on completion to Camp *Hancock*, Augusta, Ga., base hospital, from Fort Riley, Lieut. JOHN W. THOMSON, Garrett.

To San Francisco, Calif., for instruction, and on completion *to Camp Kearny*, Linda Vista, Calif., base hospital, from Douglas, Ariz., Capt. JOHN E. METCALF, Gary.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. HENRY V. LOGAN, Rushville.

Iowa

To Camp Dodge, Des Moines, Ia., as Captain in the Medical Reserve Corps, from duty as Captain in the National Army, Capt. JOHN R. GARDNER, Lisbon.

To Camp Grant, Rockford, Ill., to examine the command for mental and nervous diseases, from Fort Ontario, Capt. RICHARD G. EATON, Cherokee.

To Camp Pike, Little Rock, Ark., base hospital, from Camp Pike, Major JAMES W. THORNTON, Ackley.

To Camp Travis, Fort Sam Houston, Tex., base hospital, from Fort Riley, Lieut. IRA D. KELSHEIMER, Paxton.

To Fort Oglethorpe for instruction, Lieut. GEORGE H. STEELE, Belmond; from Chicago, Capt. CALVIN W. HARNED, Des Moines; Lieut. GEORGE R. NARRLEY, Keokuk.

To Fort Riley for instruction, Capt. CHARLES F. SMITH, Des Moines; Lieuts. DONALD ENFIELD, Clarinda; SIDNEY B. BELLINGER, Council Bluffs; ROY C. JACKSON, Independence State Hospital; THOMAS A. KING, West Union. Base hospital, from Fort Riley, Lieut. CHARLES D. SHELTON, Bloomfield.

To Fort Sam Houston, Tex., for duty, from Fort Riley, Lieut. WILLIAM M. HUBBARD, Rembrandt.

Kansas

To Camp Logan, Houston, Tex., base hospital, from Camp Logan, Lieut. ROBERT L. HOFFMAN, Wichita.

To Fort Oglethorpe for instruction, from Chicago, Capt. JOHN F. HASSIG, Lieut. LOT D. MABIE, Kansas City.

To Fort Riley for instruction, Capt. JAMES W. MAY, Kansas City; Lieuts. CHESTER P. SHEPARD, Independence; CAREY C. KERR, LeCompton; BAHNSON WEATHERS, Osawotomie.

To Fort Sam Houston, Tex., for duty, from Fort Riley, Lieuts. LEWIS M. GORE, Galva; ORVILLE O. MOORE, Topeka.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. ROBERT G. KOGER, Norwich.

Resignation of Capt. JAMES C. BUTLER, Stafford, accepted.

Kentucky

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieut. HOMER L. NICKELL, Salt Lick.

To Camp MacArthur, Waco, Tex., base hospital, from Fort Oglethorpe, Lieut. WILLIAM B. GODDARD, Harrodsburg.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Chicago, Lieut. CHARLES E. VIDT, Russell.

To Camp Upton, Long Island, N. Y., for duty, from Camp Meade, Capt. MORTON M. MOSS, Bowling Green; Lieut. SMITHFIELD KEFFER, Ashland. To examine the command for mental and nervous diseases, from New York City, Lieut. ERMIN L. RAY, Louisville.

To Camp Zachary Taylor, Louisville, Ky., base hospital, Major DAVID BARROW, Capt. ROBERT M. COLEMAN, Lieuts. GEORGE H. WILSON, Lexington; CALVIN G. ARNOLD, CHARLES W. JEFFERSON, MARION E. PIRKEY, Louisville; from Camp Beauregard, Capt. ROBERT LOCKHART, Owensboro; from Camp Zachary Taylor, Major WALTER O. BULLOCK, Lexington; Capt. JOHN J. MOREN, Louisville; Lieuts. CLAUDE WILSON, Greenville; WILLIAM D. REDDISH, WALTER S. WYATT, Lexington; DAVID H. McKINLEY, Winchester; from Fort Oglethorpe, Major JULIAN T. McCLYMONDS, Lexington; Lieuts. SEPTIMAS T. TAYLOR, Central City; JUDSON P. BOULWARE, Louisville; OLIVER H. P. PARRIGIN, Mill Springs; from Fort Riley, Lieut. VIRGIL G. KINNAIRD, Lancaster; from New York City, Lieut. JAMES A. RYAN, Covington.

To Fort Oglethorpe for instruction, Lieuts. HUGH H. RICHESON, Campbellsville; JOHN M. RYAN, Carrollton; from Army Medical School, Capt. GRIFFIN C. KELLY, Louisville.

To Fort Ontario, N. Y., for duty, from Washington, D. C., Capt. MALCOLM H. YEAMAN, Henderson.

To Fort Riley for duty, from Camp MacArthur, Lieut. MARION W. PAGE, Sedalia.

To Rockefeller Institute for instruction and on completion *to Williamsbridge, N. Y.*, for temporary duty, Capt. THOMAS C. HOLLOWAY, Hazard.

Louisiana

To Camp Beauregard, Alexandria, La., base hospital, Lieut. THEODORE T. BATSON, New Orleans. For duty, from Camp Beauregard, Lieut. ALONZO T. PALMER, Oakdale.

To Camp Greene, Charlotte, N. C., for duty, from Fort Oglethorpe, Capt. DELAND S. CALHOUN, Ruston.

To Camp Hancock, Augusta, Ga., for duty, from Fort Oglethorpe, Lieut. WALTER H. REILLEY, New Orleans.

To Camp Jackson, Columbia, S. C., base hospital, Capt. RALPH HOPKINS, New Orleans, from Fort Oglethorpe, Lieut. GEORGE W. WRIGHT, Monroe. For duty, from Fort Oglethorpe, Lieut. MATTHIAS M. COLLINS, Houston.

To Camp Pike, Little Rock, Ark., base hospital, Lieuts. HAROLD D. VAN SCHAICK, Elizabeth; WALLACE L. DIXON, Hope Villa; EDWIN R. YANCY, Jonesville.

To Fort Oglethorpe for instruction, Lieuts. DANIEL M. SILVERMAN, Franklin; CLARENCE B. ERICKSON, EUGENE B. SIMPSON, Shreveport.

To the inactive list, from Camp Beauregard, Major WHYTE G. OWEN, White Castle.

Maine

To Camp Wheeler, Macon, Ga., for duty, from Camp Gordon, Lieut. HERBERT L. WILLIAMS, Auburn; from Fort Oglethorpe, Lieut. HAROLD F. ATWOOD, Buckfield.

To Portland, Me., Coast Defenses, for duty, Capts. NORMAN R. COOK, Brooks; DANIEL W. WENTWORTH, Sanford; Lieuts. THOMAS ARNESON, Climax; WILLIS E. GOULD, Livermore.

To New York City Neurological Institute, for intensive training, Lieut. ARTHUR C. WRIGHT, Augusta.

Maryland

To Camp Meade, Annapolis Junction, Md., base hospital, Lieuts. CHARLES C. HABLISTON, DAVID C. STREET, Baltimore; from Camp Meade, Majors CARY B. GAMBLE, Jr., ARCHIBALD C. HARRISON, Capt. WILLIAM K. WHITE, Lieuts. THOMAS K. GALVIN, FRANK C. MARINO, HARRY M. STEIN, Baltimore; from Camp Sheridan, Capt. EUGENE K. HAYWARD, Baltimore; from Fort Des Moines, Lieut. EDWARD S. JOHNSON, Baltimore; from Fort Oglethorpe, Capt. EDWARD A. LOOPER, Lieuts. FRANK L. JENNINGS, Baltimore; RAYMOND K. FOXWELL, Cambridge.

To Camp Sheridan, Montgomery, Ala., base hospital, from Fort Oglethorpe, Lieut. DORSEY P. ETZLER, Baltimore.

To Camp Upton, Long Island, N. Y., to examine the command for mental and nervous diseases, from New York City, Lieuts. PHILLIP PEARLSTEIN, Baltimore; JOHN G. RUNKEL, Catonsville.

To Camp Zachary Taylor, Louisville, Ky., base hospital, from Fort Oglethorpe, Lieut. ALBERT G. HAHN, Baltimore.

To New York City, Cornell Medical College, as instructor in the school of military roentgenology, Major FREDERICK H. BAETJER, Baltimore. For instruction, and on completion *to Hoboken, N. J.*, base hospital, Lieut. JOHN EVANS, Baltimore.

To Rockefeller Institute for instruction, and on completion *to his proper station*, from Camp Meade, Major PAGE EDMUNDS, Baltimore.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. WILLIAM T. FORNEYHOUGH, Baltimore.

Massachusetts

To Camp Dodge, Des Moines, Ia., to examine the command for mental and nervous diseases, from Camp Pike, Lieut. WALTER A. JILLSON, Westboro.

To Camp Gordon, Atlanta, Ga., to examine the command for mental and nervous diseases, from Camp Joseph E. Johnston, Lieut. JAMES A. GOULD, Westboro.

To Camp Hancock, Augusta, Ga., base hospital, Lieut. FRANK E. HARRIMAN, Worcester.

To Camp Jackson, Columbia, S. C., base hospital, from Fort Oglethorpe, Lieut. WALTER H. LACEY, Boston. To examine the command for mental and nervous diseases, from Boston, Lieut. CYRUS B. PARTINGTON, Fall River.

To Camp Meade, Annapolis Junction, Md., base hospital, Capt. MALCOLM SEYMOUR, Boston.

To Camp Pike, Little Rock, Ark., Camp Shelby, Hattiesburg, Miss., *Camp Sheridan*, Montgomery, Ala., for conference and on completion *to his proper station*, from Camp McClellan, Major WILLIAM H. ROBEY, Boston.

To Camp Upton, Long Island, N. Y., to examine the command for mental and nervous diseases, from New York City, Lieuts. HARVEY M. WATKINS, Palmer; WINFRED OVERHOLSER, Westboro.

To Camp Wheeler, Macon, Ga., base hospital, from Fort Oglethorpe, Lieut. WILBERT G. HARDY, Boston.

To Fort Ethan Allen, Vt., base hospital, from Fort Ethan Allen, Capt. ARTHUR P. JAMES, Boston.

To Fort Jay, N. Y., for temporary duty, Lieut. CHARLES W. WRIGHT, North Adams.

To Fort Oglethorpe for duty, from Army Medical School, Lieut. DAVID B. MEDALIA, Boston. For instruction, Lieuts. ERNEST M. MORRIS, Fall River; ABRAHAM F. THOMAS, Newburyport; JAMES H. COOK, Quincy; HARRY A. WALKER, Somerville.

To New York City, for duty, and on completion *to his proper station*, Major HORACE D. ARNOLD, Boston. *To New York City* and *Boston* for inspection and on completion *to his proper station*, Major ALLEN GREENWOOD, Boston.

To Rockefeller Institute for instruction, and on completion to Camp Beauregard, Alexandria, La., base hospital, Lieut. CHARLES D. McCANN, Brockton. On completion *to Camp Devens*, Ayer, Mass., base hospital, Lieut. HORACE K. SOWLES, Boston. On completion

to Williamsbridge, N. Y., for temporary duty, Lieut. THOMAS W. WICKHAM, Boston.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, Lieut. GEORGE L. CURRAN, North Adams.

To Washington, D. C. for duty, in the Surgeon-General's Office, Major SAMUEL J. MIXTER, Boston.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. WILLIAM E. BAXTER, Topsfield.

Revocation of discharge, Major WALTER B. LANCASTER, Boston.

Michigan

To Camp Pike, Little Rock, Ark., with the board examining the troops for cardiovascular diseases, from Fort Riley, Lieut. LOWELL M. BUSH, Corruna.

To Camp Sherman, Chillicothe, Ohio, to examine the command for mental and nervous diseases, from Camp McClellan, Lieut. ARTHUR R. TIMME, Detroit.

To Camp Travis, Fort Sam Houston, Tex., to examine the command for mental and nervous diseases, from Fort Riley, Lieut. GORDON H. BAHLMAN, Flint.

To Detroit, Mich., for duty, Capt. ROBERT R. FOX, Detroit.

To Fort Bliss, Tex., as division tuberculosis specialist, from Fort Oglethorpe, Lieut. WILLIAM A. O'BRIEN, Detroit.

To Fort Des Moines, Ia., base hospital, from Fort Riley, Lieut. JOHN D. STEWART, Hartford.

To Fort Ethan Allen, Vt., base hospital, from Fort Oglethorpe, Lieut. THEODORE H. SMITH, Detroit.

To Fort Oglethorpe for instruction, Lieut. GORDON H. YEO, Big Rapids.

To Fort Riley for instruction, Capts. WILLIAM DEV. LYMAN, Grand Rapids; ANDREW A. McKAY, Manistee; EMIL P. W. RICHTER, Saginaw; Lieuts. BRUNO B. BRUNKE, GEORGE L. KOESSLER, Detroit; ROY DuB. TUPPER, Redford. For duty, from Fort Riley, Lieuts. RUSSELL R. HUSTON, Copemish, WILLIAM GRAMLEY, Detroit; PAUL H. LIPPOLD, Escanaba.

To Houston, Tex., for duty, from Fort Riley, Lieut. ROBERT J. BEEBY, West Branch.

To Millington, Tenn., Park Field, from Camp Pike, Lieut. JOHN L. MEDDAUGH, Rolling.

To Mount Clemens, Mich., Aviation Section Signal Corps, for duty, Capt. ROBERT V. GALLAGHER, Battle Creek; Lieut. NELSON ABBOTT, Lake City.

To Rockefeller Institute for instruction, and on completion *to Camp Greene*, Charlotte, N. C., base hospital, from Fort Riley, Lieut. CHARLES D. COLLINS, Ironwood.

Minnesota

To Camp Custer, Battle Creek, Mich., from Army Medical School, Lieut. ARTHUR E. MARK, Rochester.

To Camp Grant, Rockford, Ill., base hospital, Lieut. ARTHUR IRVING ARNESON, Emmons.

To Camp Pike, Little Rock, Ark., base hospital, from Camp Pike, Major HARLEY G. BICKFORD, Minnesota Lake; from Fort Riley, Lieut. HAROLD L. GOSS, Minneapolis.

To Camp Travis, Fort Sam Houston, Tex., with the board examining the troops for cardiovascular diseases, from Fort Riley, Lieut. JOSEPH H. COSGROVE, Duluth.

To Fort Myer, Va., as orthopedic surgeon, from Fort Oglethorpe, Capt. ROBERT H. MONAHAN, International Falls.

To Fort Riley for duty, from Fort Riley, Capt. GUSTAV H. LUEDTKE, Fairmont; from Camp Logan, Lieut. VIRGIL H. MOATS, Minneapolis. For instruction, Capts. FRANK S. WARREN, Faribault; STEPHEN H. BAXTER, LOUIS L. TEN BROOCK, Minneapolis; JAMES C. FERGUSON, St. Paul; Lieuts. CHARLES GERMO, Balaton; AXEL W. SWEDENBURG, Cannon Falls; JOHN STEVENS, Convick; ALPHONSE CYR, Barneseville; FREDERICK BARRETT, Gilbert; MORRILL E. WITHROW, International Falls; WILLIAM H. PHILLIPS, Jordon; DANIEL W. McDOUGALD, Le Sueur; ERHARD A. RUMREICH, Mahnomen; JOSEPH STOMEL, Minneapolis; GEORGE E. McCANN, Nevis; ERNEST W. COWERN, North St. Paul; ABRAHAM F. STRICKLER, Sleepy Eye; EDWARD SCHONS, HENRY I. TWISS, WILLIAM H. VON DER WEYER, St. Paul; WILLIAM C. SCHIELE, Virginia; BALDWIN BORRESON, Warren; HARRY B. WEINBURGH, Waterville.

To Mineola, Long Island, N. Y., Hazelhurst Field, Signal Corps, Aviation School, from Fort Riley, Lieut. ROY C. LOWE, Fairmont.

To Williamsbridge, N. Y., for temporary duty, from Camp Crane, Capt. RALPH T. KNIGHT, Minneapolis.

To the inactive list, from the Surgeon-General's Office, Major CHARLES H. MAYO, Rochester.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. WALTER W. NAUTH, Minneiska.

Mississippi

To Camp Beauregard, Alexandria, La., for duty, from Fort Oglethorpe, Lieut. HAL G. JOHNSON, Dundee.

To Camp Gordon, Atlanta, Ga., base hospital, from Fort Oglethorpe, Lieut. THOMAS T. BOX, Columbus.

To Camp Jackson, Columbia, S. C., for duty, from Fort Oglethorpe, Lieut. RILEY B. YATES, Sidon.

To Camp Kelly, San Antonio, Tex., for duty, Lieut. WILLIAM L. NEWTON, New Albany.

To Camp Lee, Petersburg, Va., for duty, from Camp Devens, Lieut. ELI E. FARMER, Dockery; from Fort Oglethorpe, Lieut. WILLIAM J. AYCOCK, Hohenlinden.

To Camp Pike, Little Rock, Ark., base hospital, from Camp Pike, Major NOLAN STEWART, Jackson.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Fort Oglethorpe, Lieut. CHARLES H. HARRISON, Philadelphia.

To Fort Oglethorpe for instruction, Lieut. GEORGE E. JOHNSON, Hudsonville.

To New Haven, Conn., for observation, treatment and report, Lieut. ELI E. FARMER, Dockery.

Honorably discharged on account of physical disability incident to the service, Capt. HENRY L. NOEL, Lexington.

Missouri

To Fort Riley for duty, from Camp Travis, Lieut. CHRISTOE A. ABRAMOPOULOS, Kansas City; from Fort Riley, Lieuts. BEN A. SALZBERG, Kansas City; ANDREW J. GETTINGER, WILLIAM B. YORK, St. Louis. For instruction Lieuts. JOHN A. MALLEY, Monroe City; CHARLES A. BARNARD, Portage De Sioux; PAUL S. LOWENSTEIN, St. Louis; from Kansas City, Lieut. GEORGE E. BELLOWS, Kansas City.

To Fort Totten, N. Y., for duty, from Camp Dodge, Capt. ROBERT MIDDLEBROOK, Kansas City.

To Hoboken, N. J., for duty, Major WILLIAM T. COUGHLIN, St. Louis.

To Millington, Tenn., Park Field, to conduct a nutritional survey and on completion *to Lonoke, Ark.*, Ebberts Field, for the same duty, and on completion *to Dallas, Tex.*, Love Field, for the same duty, and on completion *to Waco, Tex.*, Rich Field, for the same duty, from Jefferson Barracks, Capt. DON R. JOSEPH, St. Louis.

To San Antonio, Tex., Kelly Field, to examine the command for mental and nervous diseases, from Camp Bowie, Lieut. HAROLD W. FAY, St. Louis.

To the inactive list, from Kansas City, Capt. ROGER B. BREWSTER, Kansas City.

Honorably discharged, Lieut. CHARLES E. MANESS, Stella.

Montana

To Camp Zachary Taylor, Louisville, Ky., base hospital, Lieut. CLINTON V. REED, Three Forks.

To Fort Riley for instruction, Capt. ELLIS A. JOHNSTON, Helena.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. FRANK LACKNER, Musselshell.

Nebraska

To Camp Dodge, Des Moines, Ia., with the board examining the troops for cardiovascular diseases, from Fort Riley, Lieut. VERNARD A. LANPHIER, Sutton.

To Camp Hancock, Augusta, Ga., for duty, from Camp Zachary Taylor, Lieut. HENRY M. FITZGIBBON, Omaha.

To Camp Kelly, San Antonio, Tex., for duty, Lieut. NEIL L. CRISS, Omaha.

To Champaign, Ill., University of Illinois, for duty, from Omaha, Lieut. SAM D. COWAN, Falls City.

To Fort Omaha, Neb., for duty, Capt. WILLIAM H. BETZ, Omaha.

Nevada

To San Francisco, Calif., for instruction, and on completion *to his proper station*, from Camp Lewis, Capt. BENJAMIN F. CUNNINGHAM, Reno.

New Hampshire

To Camp Beauregard, Alexandria, La., base hospital, from Fort Oglethorpe, Lieut. ROBERT FLANDERS, New York City.

To Camp Dix, Wrightstown, N. J., as orthopedic surgeon, from Fort Oglethorpe, Lieut. RALPH S. PERKINS, Exeter.

To Camp Wheeler, Macon, Ga., for duty, from Camp McClellan, Capt. WILLIAM C. W. NOBLES, Littleton.

New Jersey

To Camp Hancock, Augusta, Ga., for duty, from Fort Oglethorpe, Lieut. JOS. C. WINANS, Belleville.

To Camp Shelby, Hattiesburg, Miss., base hospital, from Fort Oglethorpe, Lieut. GORDIE C. PATTEN, Carney's Point.

To Camp Upton, Long Island, N. Y., base hospital, Lieut. MATTHEW S. LEVITAS, Newark.

To Fort Monroe, Va., for duty, from Fort Monroe, Lieut. JOHN A. BOTTI, Jersey City.

To Fort Oglethorpe for instruction, Capt. PALMER A. POTTER, East Orange; Lieuts. GEORGE H. GEHRMANN, Parlin; LAWRENCE B. BOYLAN, Paterson; SAMUEL BLAUGRUND, Trenton.

To Newark, N. J., as president of the board of examiners, Major JOSEPH MACDONALD, Jr., Orange.

To Rockefeller Institute for instruction, and on completion to Camp Shelby, Hattiesburg, Miss., base hospital, Lieut. FRANK J. McLOUGHLIN, Jersey City.

New Mexico

To Fort Riley for instruction, Lieuts. ETHAN ST. C. MILFORD, Albuquerque; ROBERT T. LUCAS, Carrizozo; DENNA C. DANIEL, JOHN W. MUIR, Clayton; WILLIAM G. BASSETT, Des Moines; GEORGE W. SAMMONS, Farmington; WILLIAM C. MATTHEWS, Roswell; LOUIS F. MURRAY, Santa Fe.

To San Francisco, Calif., for instruction, and on completion *to Camp Fremont*, Palo Alto, Calif., base hospital, Lieut. HARRY D. SEWELL, Parkview.

New York

To Camp Crane, Allentown, Pa., base hospital, Capt. JEROME KINGSBURY, New York City; from Army Medical School, Lieut. MELVIN G. HERZFELD, New York City; from Camp Meade, Lieut. SAMUEL PARNASS, Brooklyn; from Camp Upton, Lieut. MAURICE LENZ, New York City; from Fort Oglethorpe, Capt. EDWIN H. HALL, Briarcliff Manor; from Hoboken, Major DANIEL A. SINCLAIR, New York City; from Walter Reed General Hospital, Lieut. MILTON W. PLATT, New York City. For duty, from Fort Oglethorpe, Lieut. DAVID H. HALLOCK, New York City.

To Camp Custer, Battle Creek, Mich., from Army Medical School, Lieut. LEON C. COTE, Albany. To examine the command for mental and nervous diseases, from New York City, Lieut. WALTER F. STILLGER, New York City.

To Camp Devens, Ayer, Mass., to examine the command for mental and nervous diseases, from New York City, Capt. GEORGE A. SHARP, Beacon; Lieut. JOHN P. McNEILL, Central Islip.

To Camp Dix, Wrightstown, N. J., as orthopedic surgeons, from Fort Oglethorpe, Lieuts. FRANK G. WALZ, Buffalo; EDWARD A. FLYNN, New York City. Base hospital, Lieuts. THEOBALD P. DOESCHER, Albany; SOLOMON HENDLEMAN, Brooklyn; EDGAR BIERBER, Byron. For duty, from Fort Oglethorpe, Lieuts. WILBUR F. MACDONALD, Delanson; LOUIS E. McCANNA, Elmira. To examine the command for mental and nervous diseases, from New York City, Lieut. ELIAS C. FISCHBEIN, Sonyea.

To Camp Doniphan, Fort Sill, Okla., base hospital, from Camp Doniphan, Major CURTENIUS GILLETTE, New York City.

To Camp Forrest, Chickamauga Park, Ga., for duty, from Fort Oglethorpe, Capts. CHARLES H. ERWAY, Elmira; STANMORE L. CASH, New York City; STEPHEN A. MAHADY, Utica. As divisional tuberculosis specialist, from Camp McClellan, Capt. HAROLD D. BREWSTER, New York City. As orthopedic surgeon, from Fort Oglethorpe, Lieut. RAYMOND B. MORRIS, Olean.

To Camp Gordon, Atlanta, Ga., as a member of the board to examine the command for tuberculosis, from Fort Oglethorpe, Lieut. HENRY M. SPOFFORD, Batavia. Base hospital, from Fort Oglethorpe, Lieuts. PATRICK H. J. BUCKLEY, Buffalo; PHILIP L. TURNER, New York City. To examine the command for mental and nervous diseases, from New York City, Lieut. HAROLD R. ROBERT, Dannemora. With the

board examining the troops for cardiovascular diseases, and on completion *to Camp Wheeler*, Macon, Ga., base hospital, from Camp Wheeler, Lieut. MORRIS J. RADIN, New York City.

To Camp Greene, Charlotte, N. C., for duty, from Camp Greene, Capts. REED B. BONTECOU, Ithaca; THOMAS A. ROGERS, Plattsburgh.

To Camp Hancock, Augusta, Ga., base hospital, Lieut. JOHN D. VERRILLI, Brooklyn; from Fort Oglethorpe, Lieuts. ROBERT P. REYMOND, New York City; FRED L. RITTER, Pulaski.

To Camp Jackson, Columbia, S. C., base hospital, from Fort Oglethorpe, Lieuts. MERRILL N. FOOTE, WILLIAM K. PUDNEY, Brooklyn; FRANK L. MELENEY, New York City. For duty from Fort Oglethorpe, Lieuts. RAYMOND F. A. KIRCHER, Albany; CHESTER F. DURYEA, Brooklyn; ANTHONY LACOVARA, New York City.

To Camp Lee, Petersburg, Va., for duty, and on completion *to his proper station*, Major EDWARD K. DUNHAM, New York City; from Fort Oglethorpe, Lieuts. DAVID DAVIDSON, Brooklyn; ARNOLD M. GOODHART, New York City; ALBERT F. A. BARRY, Stony Point.

To Camp Zachary Taylor, Louisville, Ky., base hospital, from Williamsbridge, Capt. GEORGE F. SAMMIS, Brooklyn; from New York City, Lieut. JOHN C. KNAPP, Philmont. To examine the troops for cardiovascular diseases, Lieut. MORRIS H. KAHN, New York City.

To Fort McDowell, Calif., for temporary duty, from Fort Riley, Capt. KENT E. WILLIAMS, Rome.

To Fort McHenry, Md., for duty, from Fort McHenry, Lieut. HERMAN W. JOHNSON, Gowanda.

To Fort McPherson, Ga., for temporary duty, Lieut. JOHN C. HOLSBERGER, Jr., Brooklyn.

To Fort Oglethorpe as instructor, from Fort Hancock, Lieut. EDWARD P. EGLEE, Flushing. For instruction, Lieuts. SALVATOR C. LOJACONO, Buffalo; WILLIS E. CLARKE, ALBERT B. FERGUSON, BERRYMAN GREEN, Jr., MAXWELL L. VOLK, JACOB J. WEISS, New York City; from Camp Logan, Lieut. WARD W. MILLIAS, Rome; from Camp Sherman, Lieut. JOSEPH SCHAPIRO, New York City; from Fort Oglethorpe, Lieuts. FRANK J. MANGOLD, Brooklyn; DANIEL J. SWAN, Flushing; JOHN L. BYRNES, Hudson Falls.

To Mineola, Long Island, N. Y., Aviation Section, Signal Corps, for temporary duty, Capt. THOMAS F. BRIDGMAN, New York City; Lieut. WILLIAM B. WHITE, Jamestown, N. Y.

To Newport News, Va., for temporary duty, and on completion *to his proper station*, Major GEORGE DRAPER, New York City.

To New York City, Cornell Medical College, as assistant instructor, from Williamsbridge, Lieut. WEBSTER W. BELDEN, New York City.

To Niagara Falls, N. Y., for duty, and on completion *to his proper station*, Lieut. LESTER L. ROOS, New York City.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School* for duty, Lieut. FRANCIS J. LAWLER, Pulaski. For instruction, and on completion *to Camp Bowie*, Fort Worth, Texas, base hospital, Lieut. ALBERT G. MOTT, Yonkers. On completion *to Camp Wheeler*, Macon, Ga., base hospital, Lieut. PERCEVAL M. BARKER, New York City.

To St. Paul, Minn., training school, for duty, from Camp Kelly, Capt. EDWARD C. LYON, New York City.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, from New York City, Lieut. CHARLES WOLF, New York City.

To Williamsbridge, N. Y., for duty, Lieut. EDWARD L. BERGER, Brooklyn.

Honorably discharged, Capt. ARTHUR D. DRYFOOS, New York City. On account of physical disability incurred in line of duty, Capt. FREDERICK CROUNSE, Albany. On account of physical disability existing prior to entrance into the service, Lieuts. WILLIAM E. BARRON, Addison; PERCY H. AUSTIN, Castletown.

Resignation of Lieut. WILLIAM I. MERLIS, Brooklyn, accepted.

North Carolina

To Camp Beauregard, Alexandria, La., as commanding officer of base hospital, from Camp Beauregard, Major JOHN T. BURRUS, High Point.

To Camp Forrest, Chickamauga Park, Ga., for duty, from Fort Oglethorpe, Major CHARLES O'H. LAUGHINHOUSE, Greenville.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieut. HARVEY ROBINSON, Reidsville.

To Camp Meigs, Washington, D. C., for duty, from Camp Greene, Lieut. BURTON B. STURDIVANT, Sunburst.

To Fort McPherson, Ga., base hospital, Lieut. FREDERICK R. TAYLOR, Hight Point. For temporary duty, Lieut. MILES T. LONG, Newland.

To Fort Oglethorpe for instruction, Capt. CHARLES S. JORDON, Asheville.

To New Orleans, La., Charity Hospital, for instruction, and on completion *to Camp Bowie*, Fort Worth, Texas, base hospital, from Jackson Barracks, Lieut. HOLMAN BERNARD, Pinnacle.

To Washington, D. C., for duty in the Surgeon-General's Office, Capt. RALPH PEMBERTON, Asheville.

North Dakota

To Camp Cody, Deming, N. M., base hospital, from Fort Riley, Capt. JUDD H. KIRKHAM, Langdon.

To Fort Riley for instruction, Lieut. GUY S. FROGNER, Parshall.

To Rockefeller Institute for instruction, and on completion *to Camp Jackson*, Columbia, S. C., base hospital, from Fort Riley, Capt. GEORGE A. CARPENTER, Fargo.

Ohio

To Camp Beauregard, Alexandria, La., for duty, from Camp Bowie, Lieut. PAUL A. MURR, Galion.

To Camp Dix, Wrightstown, N. J., as orthopedic surgeon, from Fort Oglethorpe, Lieut. HARRY E. WOODBURY, Akron. Base hospital, from Fort Oglethorpe, Lieut. HARRY E. WOODBURY, Akron; from Fort Oglethorpe, Lieut. ARTHUR N. SMITH, Upper Sandusky. Base hospital, New York City, Lieut. LOUIS A. MITCHELL, Newark.

To Camp Hancock, Augusta, Ga., for duty, from Fort Oglethorpe, Lieut. LEWIS R. CARR, Prairie Depot.

To Camp Jackson, Columbia, S. C., for duty, from Camp Sevier, Lieut. ELGIE R. SHAFFER, Columbus; from Fort Oglethorpe, Lieut. JOHN H. RAMEY, Rock Camp.

To Camp Pike, Little Rock, Ark., base hospital, from Camp Pike, Capt. CURTIS C. WILLIAMS, Niles.

To Fort Oglethorpe for instruction, Lieut. WILLIAM H. CAREY, Bellefontaine; from Camp Sherman, Lieuts. DANIEL C. HANDLEY, Cincinnati; JOHN D. WAKEFIELD, Loveland.

To Fort Riley base hospital, thence *to Camp Travis*, Fort Sam Houston, Texas, base hospital, from Fort Riley, Lieut. ROBERT P. BAUSCH, Columbus. For duty, from Fort Riley, Lieut. WILLIAM J. TOPMOELLER, Cincinnati. For instruction, Lieut. JOHN W. CLARK, Vinton; from Cleveland, Capt. FRANKLIN E. CUTLER, Cleveland. With the board examining the troops for cardiovascular diseases, from Fort Riley, Capt. ERNEST R. BROOKS, Cleveland; Lieut. SYDNEY J. HAVRE, Kenmore.

To Mineola, Long Island, N. Y., Aviation Section, Signal Corps, for temporary duty, Lieut. WILLIAM W. SAUER, Marietta.

To Rockefeller Institute for instruction, and on completion *to Camp Wadsworth*, Spartanburg, S. C., base hospital, from Fort Riley, Lieut. ULYSSES M. BACHMAN, Cleveland.

Honorably discharged on account of physical disability incurred in line of duty, Lieut. DAVID R. KLINE, Cleveland. On account of physical disability existing prior to entrance into the service, Lieut. JAMES T. SUGGS, Cleveland.

Oklahoma

To Camp Beauregard, Alexandria, La., base hospital, Lieut. JAMES J. CAVINESS, Altus.

To Camp Bowie, Fort Worth, Texas, base hospital, Lieut. MARION H. FOSTER, Alderson.

To Camp Crane, Allentown, Pa., base hospital, from Camp Zachary Taylor, Lieut. CHONNER P. CHUMLEY, Oklahoma City.

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Lieut. FRANCIS A. DEMAND, Oklahoma City.

To Camp Pike, Little Rock, Ark., base hospital, Capt. WILLIAM R. BARRY, Bradley; Lieut. RAYMOND G. SHERWOOD, Ochelata.

To Fort Oglethorpe for instruction, Major RUSSELL L. KURTZ, Nowata; from Army Medical School, Lieut. JEFFREY J. BILLINGTON, Enterprise.

To Fort Riley for instruction, Capt. CHARLES W. HEITZMAN, Muskogee; Lieuts. MARION H. FOSTER, Alderson; LESLIE D. CONN, Cowlington; WILLIAM T. POLK, Maysville; FREDERICK A. COCHRAN, HERBERT V. L. SAPPER, Oklahoma City; GEORGE E. HARTSHORNE, Spiro.

To Fort Sill, Okla., Aviation Section, Signal Corps, for duty, Capt. WILLIAM R. CLEMENT, Tulsa; Lieuts. ELMER E. HEADY, Buffalo; ROBERT L. BAKER, Wynnewood.

To Rockefeller Institute for instruction, and on completion *to Camp Hancock*, Augusta, Ga., base hospital, from Fort Riley, Lieut. LOUIS BAGBY, Vinita.

Oregon

To Camp Lewis, American Lake, Wash., base hospital, Major ROBERT C. YENNEY; Capts. EDWIN W. MORSE, RALPH A. PENTON, WILLIAM H. SKENE; Lieuts. KARL P. MORAN, Portland; THOMPSON COBERTH, The Dalles,

To Fort Oglethorpe for instruction, from Chicago, Lieut. GARRETT L. RYNSON, Portland.

To Fort Riley for instruction, Capts. ROGER BISWELL, Haines; RIDEN R. HAMILTON, Klamath Falls; HARRY A. LITTLEFIELD, Newberg; FRED GULLETTE, Portland; Lieuts. JOSEPH O. VAN WINKLE, Jefferson; OREL A. WELSH, Oregon City; ARTHUR J. FAWCETT, Riddle; CLARENCE D. FULKERSON, Warmspring; HENRY Z. THARP, Weston; from Douglas, Ariz., Lieut. JOHN L. GARNER, New Pine.

To Portland, Ore., Aviation Section, Signal Corps, for duty, Capts. HERBERT L. UNDERWOOD, La Grande; EVERETT MINGUS, Marshfield; Lieuts. WILLIAM H. VOSE, Clackamas; JOHN W. GEARHART, Portland.

To report by wire to the Commanding General, Western Department, for assignment to duty, Capt. JOEL C. BOOTH, Lebanen; Lieut. DAVID P. LOVE, Junction City.

To San Francisco, Calif., for instruction, and on completion *to Camp Kearny*, Linda Vista, Calif., base hospital, Lieut. HARRY J. ANDERSON, Corvallis.

To Talmage, Calif., Mendocino State Hospital, for intensive training, Lieuts. KENNETH W. KINNEY, Astoria; CLARENCE U. SNIDER, Portland.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. CLAUDE M. PEARCE, Baker.

Pennsylvania

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieut. WALTER J. SENER, Altoona.

To Camp Logan, Houston, Texas, base hospital, from Fort Oglethorpe, Lieut. WILLIAM P. NOLAN, New Kensington.

To Camp Upton, Long Island, N. Y., base hospital, Lieut. HARRY W. ALLISON, Timblin. To examine the command for mental and nervous diseases, from New York City, Lieut. WALTER R. KRAUSS, Farview.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Fort Oglethorpe, Capt. ALEXANDER H. DAVISSON, Philadelphia. Base hospital, Lieut. HARRY GOODFRIEND, Scranton.

To Camp Wheeler, Macon, Ga., for duty, from Camp Sheridan, Lieut. JOHN C. CALHOUN, Pittsburgh; from Fort Oglethorpe, Lieut. JOHN J. SOSNOWSKI, Pittsburgh.

To Camp Zachary Taylor, Louisville, Ky., base hospital, Lieut. CARL H. BAILEY, Jamestown.

To Columbus Barracks, Mo., for duty, from Fort Oglethorpe, Lieut. WILLIAM T. PALCHANIS, Pittsburgh.

To Fort Ethan Allen Vt., for duty, from Philadelphia, Major ELIJAH H. SITER, Philadelphia. Base hospital, from Camp Lee, Lieut. OSCAR J. KINGSBURY, Nesquohoning.

To Fort McHenry, Md., for inspection, and on completion *to his proper station*, Major DAVID SILVER, Pittsburgh. For observation and treatment, Capt. HENRY C. WELKER, Norristown.

To Fort McPherson, Ga., for temporary duty, Lieuts. PERRY McD. TIBBINS, Beech Creek; WALTER M. BORTZ, Greensburg; ABE A. DATTNER, Kingston; CHARLES E. PIKE, Philadelphia; FRANCIS C. O'MALLEY, Pittston.

To Fort Oglethorpe for instruction, Lieuts. HARRY H. LEWIS, Ashland; JOHN P. HALL, Pittsburgh; from Camp Devens, Capt. HARRY S. CARMANY, Philadelphia; from Camp Meade, Lieuts. WARREN H. BUTZ, Macungie; ROBERT R. ROTH, Philadelphia; from Camp Sherman, Lieut. JAMES A. SHAFFER, Loysburg.

To Garden City, Long Island, N. Y., for duty, from Ithaca, N. Y., Lieut. EDWARD R. SIBLEY, Elkins; from Philadelphia, Lieut. BEN C. GILE, Philadelphia.

To Hoboken, N. J., for duty, from Hoboken, Major PHILIP NORRIS, Philadelphia.

To Lakewood, N. J., for duty, Major JOSEPH McFARLAND, Philadelphia.

To Mineola, Long Island, N. Y., Aviation Section, Signal Corps, for temporary duty, Lieut. ROBERT T. M. DONNELLY, Philadelphia. Hazelhurst Field, for temporary duty, Lieut. JAMES DeW. JACKSON, Erie

To Philadelphia, Pa., for instruction, in orthopedic surgery, from Camp Greene, Capt. WALTER B. HARVEY, Pittsburgh.

To Rockefeller Institute for instruction, and on completion *to Camp MacArthur*, Waco, Texas, base hospital, Lieut. ANDY J. SEDWICK, Kittanning.

To St. Paul, Minn., Training School, for duty, from Camp Kelly, Lieut. JOHN E. STRUTHERS, Danville.

To the inactive list, from Fort Oglethorpe, Major WILLIAM PEPPER, Philadelphia.

Dismissed according to cablegram from General Pershing, Lieuts. EMMETT BLACK, Bentleyville; WILLIAM F. SATCHELL, Saxton; JOHN WHANN, Jr., Soldier.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieuts. CHARLES B. SHORTLIDGE, Lima; ELI H. PORCH, Philadelphia; RAYMOND T. FRANCIS, Waynesboro.

Rhode Island

To Mineola, Long Island, N. Y., Aviation Section, Signal Corps, for temporary duty, Capt. ARTHUR W. STEVENSON, Newport.

South Carolina

To Camp Beauregard, Alexandria, La., base hospital, from Fort Oglethorpe, Lieut. OLIN D. BUSBEE, Springfield.

To Camp Jackson, Columbia, S. C., base hospital, from Camp Jackson, Lieut. GARY L. BOYKIN, Lamar.

To Rockefeller Institute for instruction, and on completion *to Camp Jackson*, Columbia, S. C., base hospital, from Fort Oglethorpe, Capt. WILLIAM H. JOHNSON, Charleston.

South Dakota

To Camp Kelly, San Antonio, Texas, for duty, Lieut. PORT McWHORTER, Miller.

To Camp Travis, Fort Sam Houston, Texas, with the board examining the troops for cardiovascular diseases, from Fort Riley, Lieut. JAMES D. EDGAR, Henry.

To Fort Riley for instruction, Capt. WILLIAM M. HUNT, Murdo; Lieut. JESSE W. FOSTER, Aurora.

To Houston, Texas, for duty, from Fort Riley, Lieut. JAMES G. CARNEY, Parkston.

Tennessee

To Camp Pike, Little Rock, Ark., base hospital, Lieuts. JAMES F. LANE, Greenville; WILLIAM A. WATSON, Memphis; from Fort Oglethorpe, Lieut. STARNES E. WALKER, Bradford; from Fort Riley, Lieut. LEON M. LANIER, Nashville.

To Camp Upton, Long Island, N. Y., for duty, from Camp Devens, Lieut. BENJAMIN C. ARNOLD, Jackson.

To Camp Wheeler, Macon, Ga., for duty, from Fort Oglethorpe, Lieuts. SAMUEL D. JOHNSON, Knoxville; JOHN C. WITHERINGTON, Munford.

To Camp Zachary Taylor, Louisville, Ky., with the board examining the troops for cardiovascular diseases, from Fort Oglethorpe, Lieut. IRA OSCAR PARK, Union City.

To Fort Oglethorpe for instruction, Lieuts. RUSSELL B. KILPATRICK, Gold Dust; CLAUDE J. FULLER, Morristown; from Army Medical School, Lieut. SHIELDS ABERNATHY, Memphis; from Fort Oglethorpe, Lieut. JAMES M. SMYTH, Camden.

To Rockefeller Institute for instruction, and on completion *to Camp McClellan*, Anniston, Ala., base hospital, from Fort Oglethorpe, Lieut. ROBERT M. YOUNG, Knoxville.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, Lieut. JOHN W. RAGSDALE, Memphis.

Resignation of Lieuts. WILLIS S. ALEXANDER, Ridgely, and CLAUDE M. BANKS, Springfield, accepted.

Texas

To Camp Beauregard, Alexandria, La., for duty, from Fort Oglethorpe, Lieut. JOHN J. GILL, Lamasco.

To Camp Custer, Battle Creek, Mich., from Army Medical School, Lieut. THOMAS L. GOODNIGHT, Caldwell.

To Camp Grant, Rockford, Ill., as a member of the tuberculosis examining board from Camp MacArthur, Capt. JOHN T. BERNARD, Dallas.

To Camp Logan, Houston, Texas, base hospital, Capt. EUGENE R. CARPENTER, El Paso.

To Camp Pike, Little Rock, Ark., base hospital, Lieut. HERBERT DONNELL, Waxhahachie.

To Camp Shelby, Hattiesburg, Miss., base hospital, from Fort Oglethorpe, Lieut. CHARLES H. WARREN, Gainesville.

To Camp Upton, Long Island, N. Y., for duty, from Fort Riley, Lieut. WILBUR CARTER, Sherman.

To Douglas, Ariz., for duty, from Fort Riley, Lieut. ARCHER B. WORSHAM, Brashear.

To Fort Bliss, Texas, base hospital, from Camp Stanley, Lieut. EMANUEL TOOMIN, Waco.

To Fort Logan H. Roots, Ark., base hospital, from Fort Riley, Lieut. WILLIAM H. CADE, Galveston.

To Fort Riley for instruction, Capts. DAVID C. WYLIE, Aspermont; WILLIAM H. MORROW, Dunn; Lieuts. LAWRENCE W. HOLLIS, Abilene; ROBERT T. SPENCER, Arlington; BRUNS P. HOLLAND, Beaumont; CHARLES R. GOWEN, Cristobal; ROBERT W. COWART, ROLLAND T. TRAVIS, Dallas; SAMUEL B. LOCKER, Mercury; VICTOR E. LONGMIRE, Temple; JESSE L. DAWSON, Valley View.

To Millington, Tenn., Park Field, from Fort Oglethorpe, Lieut. MAURY J. PERKINS, Alice.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School*, for duty, Lieut. RUSSELL E. TYLER, Newlin.

Honorably discharged on account of physical disability incident to the service, Lieut. WILLIAM A. JENNINGS, Dallas.

Resignation of Lieut. ISADOR BRAUN, Shinor, accepted.

Utah

To Fort Riley for instruction, Lieut. LEROY C. POTTER, Provo.

Vermont

To Camp Jackson, Columbia, S. C., for duty, from Fort Oglethorpe, Lieut. BERT D. GEORGE, Hardwick.

To Camp Upton, Long Island, N. Y., to examine the command for mental and nervous diseases, from New York City, Lieut. HENRY E. ST. ANTOINE, Wincoski.

To Fort Ethan Allen, Vt., for duty, from Camp Dix, Major WILLIAM W. TOWNSEND, Rutland.

Virginia

To Camp Beauregard, Alexandria, La., base hospital, from Fort Oglethorpe, Lieut. FRANK L. WYSOR, University.

To Camp Crane, Allentown, Pa., base hospital, from Camp Lee, Lieut. JUNIUS E. WARRINER, Jr., Richmond.

To Camp Custer, Battle Creek, Mich., base hospital, from Fort Oglethorpe, Lieut. WESLEY R. PUTNEY, Amelia C. H.

To Camp Dix, Wrightstown, N. J., as orthopedic surgeon, from Fort Oglethorpe, Lieut. RAYMOND C. HOOKER, Richmond.

To Camp Greene, Charlotte, N. C., as commanding officer of base hospital, from Camp Greene, Major GEORGE A. RENN, Norfolk. Base hospital, from Fort Oglethorpe, Lieut. JAMES O. MUNDY, Jr., Raccoon Ford. For duty, from Fort Oglethorpe, Lieut. FORREST T. SUMMERS, Snowville.

To Camp MacArthur, Waco, Texas, for duty, from Camp MacArthur, Capt. HORACE T. HAWKINS, Richmond.

To Camp Meade, Annapolis Junction, Md., base hospital, from Fort Oglethorpe, Lieut. CLYDE L. BAILEY, Sutherlin.

To Camp Sevier, Greenville, S. C., base hospital, Lieut. HUNTER S. WOODBERY, University.

To Camp Zachary Taylor, Louisville, Ky., base hospital, from Camp Shelby, Lieut. CHARLES C. CARR, Tom's Creek.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. WILLIAM T. WIMBISH, Clarksville.

Resignation of Lieut. WILLIE S. HODNETT, Richmond, accepted.

Washington

To Camp Crane, Allentown, Pa., for duty, from Fort Worden, Lieut. ALBERT P. DURYEE, Everett.

To Camp Grant, Rockford, Ill.; *Camp Dodge*, Des Moines, Iowa, base hospitals, and on completion *to his proper station*, from Camp Lewis, Major HORACE J. WHITACRE, Tacoma.

To Camp Pike, Little Rock, Ark., base hospital, from Fort Riley, Lieut. EARLE V. SHEAFE, Winlock.

To Fort Oglethorpe for instruction, from Chicago, Capt. WARNER M. KARSHNER, Puyallup.

To Fort Riley for instruction, Capts. JULIUS G. HEWGORD, Everett; FRANK C. ROBINSON, Walla Walla; Lieuts. HARRY MARTIN, Cashmere; WILLIAM A. MITCHELL, Colfax; RALPH F. GOETTER, Colville; JOHN F. MacDONALD, Hoquiam; LEGRAND SPAULDING, Kannewick; EDMOND G. KLAMKE, Port Gamble; WILLIAM R. L. REINHARDT, Spokane.

To Portland, Ore., Aviation Section, Signal Corps, for duty, Lieut. WILLIAM R. BRANDT, Auburn; GEORGE W. CORNETT, Yakima.

To San Francisco, Calif., for instruction, and on completion *to his proper station*, from Camp Lewis, Capts. JOHN W. HUNT, Seattle; HERBERT E. WHEELER, Spokane.

Honorably discharged, Lieut. GEORGE W. OVERMEYER, Aberdeen.

West Virginia

To Camp Hancock, Augusta, Ga., for duty, from Fort Oglethorpe, Capt. CHARLES O. STAATS, Spencer; Lieut. ALVAH L. PARSONS, Charleston.

To Camp Meade, Annapolis Junction, Md., base hospital, from Fort Oglethorpe, Capt. HERBERT H. HAYNES, Clarksburg; from Camp Meade, Lieut. ERNEST F. GOTT, Bluefield.

To Fort McPherson, Ga., for temporary duty, Lieuts. WILLIAM D. LEWIS, Beckley; WATSON S. ROWAN, Branwell.

To Fort Oglethorpe for instruction, Lieuts. IVY G. SHIRKEY, Carbon; CHARLES M. TRUSCHEL, Wheeling; from Chicago, Lieut. WILLIAM C. WILLIAMS, Caretta.

Wisconsin

To Camp Crane, Allentown, Pa., base hospital, from Newport News, Lieut. CHARLES B. RYDELL, Superior.

To Camp Devens, Ayer, Mass., to examine the command for mental and nervous diseases, from Camp Devens, Lieut. CHARLES C. ROWLEY, Winnebago.

To Camp Forrest, Chickamauga Park, Ga., for duty, from Fort Oglethorpe, Capt. HARRY C. MIX, Green Bay.

To Camp Gordon, Atlanta, Ga., to examine the command for mental and nervous diseases, from Camp Joseph E. Johnston, Lieut. WILLIAM J. FLEMING, Wauwatosa.

To Camp Upton, Long Island, N. Y., for duty, from Fort Riley, Capt. CONRAD W. WILKOWSKI, Chippewa Falls.

To Camp Wadsworth, Spartanburg, S. C., base hospital, Lieut. ERWIN G. LINKMAN, Milwaukee.

To Camp Zachary Taylor, Louisville, Ky., for duty, and on completion *to his proper station*, Major NELSON M. BLACK, Milwaukee.

To Chicago, Ill., Northwestern University Dental School, for inspection and instruction, and on completion *to Toledo, Ohio*, for inspection, and on completion *to his proper station*, Major ROBERT H. IVY, Milwaukee.

To Fort Leavenworth, Kan., for duty, from Fort Riley, Lieut. ALEXANDER J. BERGER, New Holstein.

To Fort Riley for duty, from Fort Riley, Lieuts. CHARLES M. GRISWOLD, Alma Center; RUSSELL R. HEIM, Marinette. For instruction, Lieuts. WILLIAM F. BAKER, Birnamwood; PETER L. SCANLAN, Prairie du Chien; FRANCIS J. BROGHAMMER, Superior.

To Jefferson Barracks, Mo., for duty, Capt. NORMAN E. McBEATH, Livingston.

To Lakewood, N. J., for duty, from Ann Arbor, Capt. OSCAR C. WILHITE, Lake Geneva.

To New York City, Cornell Medical College, for instruction, in military roentgenology, from Fort Riley, Lieut. JOSEPH C. BAIRD, Eau Claire.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School* for duty, from Army Medical School, Lieut. HENRY F. HOESLEY, Shullsberg.

To San Francisco, Calif., for instruction, and on completion *to his proper station*, from Camp Cody, Lieut. CLARK O. DECKER, Crandon.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieuts. CLARK L. CAIN, Elmwood; DANA B. DISHMAKER, Kewaunee.

Wyoming

To Camp Dodge, Des Moines, Iowa, with the board to examine the troops for cardiovascular diseases, Lieut. DURWARD B. PARK, Laramie.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Upholding Venereal Disease Regulations.—An attempt at San Jose to obtain the release by habeas corpus proceedings of persons quarantined for venereal diseases under the regulations of the state board of health was prevented by Judge J. R. Welch in the superior court, who dismissed the case and remanded the infected persons to the care of the health officer. The regulations have been similarly upheld at San Diego and Los Angeles.

Personal.—Dr. Alice G. H. Anderson, Los Angeles, has been appointed head of the medical department of the woman's division of the state hospital, Patton, and assumed her new duties, April 1.——Dr. Frederick W. Rinkenberger has succeeded Dr. William H. Harrison at the Emergency Hospital, San Francisco, and Dr. Charles H. Peterson has been appointed to the position vacated by Dr. Joseph H. D. Roger. ——Dr. La Verne C. Wright, Oakland, left March 30 for France, where she will do relief work among the refugees. ——Dr. Wilfred H. Kellogg, director of the bureau of communicable diseases of the state board of health, was made secretary of the board to succeed Dr. Wilbur A. Sawyer, who has joined the colors.

FLORIDA

Drive for a New Hospital.—The campaign to raise funds to build the Good Samaritan Hospital, Palm Beach, closed March 11. Palm Beach has subscribed $32,000 and West Palm Beach, $12,000, to the fund of $60,000. As $25,000 had been raised last year, the fund was oversubscribed by $9,000.

Sanitation for Shipyards.—The state board of health has taken steps to place and keep the district surrounding the plant of the Pensacola Shipbuilding Company, in a thoroughly sanitary condition. The plan includes the installation of a sewage disposal system. The zone extends for a radius of three quarters of a mile about the plant.

Referendum for County Sanatorium.—The Florida Antituberculosis Association is planning a campaign to secure the establishment of a tuberculosis hospital for Duval County, and will, it is expected make this question an issue at the next general election in June. It is said that there is no public institution in the state for the treatment of tuberculosis.

GEORGIA

New Sanitary Officer.—W. C. Howard, Pensacola, Fla., has been made city health and sanitary officer of Albany.

Society Entertains Staff.—The members of the medical staff of the Atlanta and Fulton County Antituberculosis Society were entertained at dinner by the president and officers of the organization, March 26. During 1917, 1,336 patients were examined in the clinics maintained by the society, including 864 new patients, of whom 136 were children. The medical staff is now headed by Dr. George M. Niles.

ILLINOIS

Lake Forest Establishes Hospital in France.—A hospital has been established in St. Cloud near Paris, by a group of people of Lake Forest headed by Mr. and Mrs. Harold Bryant, for the use of American soldiers, with accommodations for twenty-five patients.

Personal.—Dr. George A. Lighte, Tallula, has been appointed resident medical officer for the Rock Island Military District.——Dr. Joseph P. Comegys, Rock Island, has been appointed federal physician for the examination of prisoners arrested in the sanitary zone around the Rock Island Arsenal.

To Promote Hospital Efficiency.—A joint meeting of the medical staffs of the hospitals of Peoria was held at St. Francis Hospital, March 18, in order to unify the work of the institutions and promote efficiency. At the meeting Dr. William Engelbach, St. Louis, gave an illustrated lecture on "Diseases of the Ductless Glands."

Epileptic Home Ready Next Month.—The state epileptic colony, Dixon, in the establishment of which $1,000,000 has been expended, will be ready to receive patients, May 1. The plant consists of seventeen buildings located on a plot of 1,100 acres on Rock River, above Dixon. Eventually 2,000 patients will be accommodated, but at first groups of fifty will be admitted. Dr. Henry B. Carriel, Jacksonville, is superintendent of the institution.

Chicago

Personal.—Dr. Frank W. Taussig, chairman of the United States Tariff Commission, has been placed at the head of the special committee to conduct an inquiry into the milling industry.

Expensive Expectoration.—March 21, 235 persons were arrested, charged with violating the city ordinance prohibiting expectoration on sidewalks and in public places. Of the accused 226 pleaded guilty, and were each fined $1.

Hospital Unit Leaves.—Base Hospital Unit No. 11, commanded by Major Nelson M. Percy, M. C., U. S. Army, and composed of 152 enlisted men and 100 nurses from St. Joseph's, St. Mary of Nazareth, and Augustana hospitals, left Chicago for Des Moines, Iowa, April 2.

Doane's Work in Washington.—Under the direction of Major Philip Schuyler Doane, M. R. C., U. S. Army, the Emergency Fleet Corporation in Washington is organizing a welfare service for its thousands of employees in that city and in the shipyards on the sea coast and the Great Lakes.

Writ Denied.—March 27, Judge Oscar M. Torrison entered an order overruling the motion of counsel for Drs. Arthur L. Blunt and Isaac Hodgens, for a writ of certiorari to compel the state board of registration and education to produce in court the records of the proceedings by which that body revoked the licenses of the two physicians.

MARYLAND

Personal.—Dr. Charley I. Hammond, Baltimore, was taken suddenly ill recently and rushed to Mercy Hospital where it was found that he was suffering from uremic poisoning. His condition is reported improved.——Dr. Frank J. Flannery, resident physician of Mount Hope Retreat, suffered a severe nervous shock and was badly shaken up in a collision between his automobile and a motor bus; he is reported as much improved.

Hospital Fund Raised.—The $10,000 emergency fund of the University of Maryland Base Hospital Unit No. 42 has been completed. Subscriptions amounting to $5,854.51 were received by Dr. James M. H. Rowland, dean of the University of Maryland, who is treasurer of the fund, and the executive committee of the Maryland branch of the Red Cross gave $5,000. This oversubscribes the amount. It is expected that orders to leave for the port of embarkation will be received within the next two weeks.

MISSISSIPPI

Personal.—Dr. Francis E. Harrington of the United States Public Health Service has succeeded Dr. J. A. Watkins in charge of the Mississippi cantonment work at Hattiesburg. ——Dr. Matthew J. L. Hoye has been appointed superintendent of the East Mississippi Insane Hospital at Meridian, to succeed Dr. James M. Buchanan who served in that office for twenty-seven years.——Dr. Charles D. Mitchell, Pontotoc, has been appointed superintendent of the Mississippi Insane Hospital, Jackson, in place of Dr. Robert M. Butler, Liberty, resigned. He assumed his new duties, April 1.——Dr. W. E. Noblin, Yazoo City, has been appointed county health officer to succeed Dr. Orrin H. Swayze.

Miscellaneous.—Through Dr. Oscar Dowling of the Louisiana State Board of Health, Dr. Waller S. Leathers, University, executive officer of the state board of health, has made arrangements to take care of two lepers from Harrison County on the Mississippi Gulf Coast. They will be treated in the state institution.——An appropriation of $25,000 will be asked from the legislature for the building of a new hospital at Biloxi.——The reports of the committee on eleemosynary institutions on the charity hospital at Vicksburg and the state tuberculous sanatorium at Magee, which were submitted to the state department of health, show both institutions to be in good condition and well managed. Dr. Hicks of the charity hospital of Vicksburg asked for an appropriation of $18,000 for improvements. The committee reported that the support fund should be increased about 20 per cent. on account of the increased cost of food, and also recommended the transfer of the property to the state. The tuberculosis hospital had not been entirely completed at the time of the report and

many recommendations for additional buildings and equipment were made.

NEW JERSEY

Personal.—Dr. Edward B. Rogers, Collingswood, captain in the Medical Reserve Corps, was reelected to the school board, March 22.

Tuberculosis Society Formed.—The Burlington County Antituberculosis Association was organized at Mount Holly, March 2, with Dr. Marcus W. Newcomb, Brown Mills, president.

NEW YORK

Brooklyn Hospital Needs Funds.—The Holy Family Hospital, Brooklyn, has started a campaign to raise $5,000 with which to purchase new ambulances and other equipment. The ambulances of this hospital answered 3,213 calls in 1917.

Licenses Revoked.—At a meeting held March 28, the New York Board of Regents revoked the licenses of Dr. William L. Owen of New York City and Dr. Henry Seligman of Brooklyn. Dr. Owen was recently convicted of repeatedly failing to record the disposition of heroin and has been sentenced to the federal prison at Atlanta, Ga. Dr. Seligman was convicted of conspiracy in an attempt to discharge and exempt Joseph Levy from the requirements of the selective service act.

War Hospital at Mineola.—Announcement was made, April 4, that the fair grounds at Mineola, L. I., will be turned over to the government for a convalescent hospital. They comprise 63 acres which have been used as an aviation field. When the present buildings have been remodeled, they will house 10,000 patients. At present convalescents from the various army cantonments will be cared for, but later it is probable that the institution will be used for soldiers returning from overseas.

New York City

Personal.—Dr. Stephen Smith has resigned as a member of the state board of charities. During the period since 1881, with the exception of six years, from 1882 to 1888, when he was a member of the state commission on lunacy, Dr. Smith has served continuously on the board. He was 95 years old, February 19.

Investigate Powdered Glass Reports.—The New York City Health Department has analyzed in its laboratory more than 100 samples of bread, rolls, candy and other foodstuffs said to contain powdered glass. No glass was found. Fifty per cent. of the samples contained sand or grit. The department states that in normal times only 5 per cent. of persons finding sand or grit in their food would report it, while at the present time 75 or 80 per cent. would report the fact to the department. The department warns the public against the wave of hysteria that seems to be the result of these unfounded reports.

NORTH DAKOTA

Hospital Opened.—The new main building of Parrott Hospital, Winston-Salem, which was recently completed at a cost of more than $65,000, has been opened to receive patients.

Clean-Up Week.—The period from April 5 to April 20, has been set apart as the time in which there is to be throughout the state a general clean-up of all waste material that might harbor disease germs. The state authorities ask that the municipalities cooperate with them in this laudable sanitary endeavor.

OHIO

Army Tuberculosis Victims.—The state is short of funds to erect two required buildings at the Mount Vernon Tuberculosis Sanatorium to care for men discharged from the Army for tuberculosis. To an inquiry from the state, the War Department has responded that it regards the state as responsible for the care of these patients, and the state is looking to the Red Cross to provide funds to the amount of $50,000 for the necessary buildings.

State Venereal Disease Campaign.—The state department of health has announced the details of its campaign against venereal diseases in conformity with the plan of the federal authorities for suppressing these diseases, and Dr. H. N. Cole, of Western Reserve University, Cleveland, has been placed in charge. The campaign will be carried on purely as a matter of public health, divorced from all moral issues. The cities will cooperate with their separate organizations. The campaign will include such measures as education through placards and leaflets, a bureau of sex advice, free Wassermann and other laboratory tests, cooperation with local authorities in organizing clinics and providing hospital beds, and cooperation with the military authorities in locating and treating sources of infection.

PENNSYLVANIA

Personal.—Dr. William H. Glick has resigned as medical inspector of the Bethlehem public schools.——The successor of the late Samuel G. Dixon, commissioner of health has not yet been appointed. Among those reported to be recommended for the position are: Dr. Wilmer Krusen, health director of Philadelphia; Dr. E. G. Davis, head of the medical advisory board in the draft service, and Dr. Edgar M. Green of Easton.

Miscellanecus.—A systematic effort throughout the state to ascertain the opinion of physicians regarding the present compensation law is being made. The law at present allows compensation to physicians for fourteen days. Many physicians think this time should be lengthened to twenty-one or thirty days. This was the consensus of opinion at a meeting of the Westmoreland County Medical Society, at which the law was discussed.

Philadelphia

Charitable Bequests.—The will of the late Henrietta A. Widdafield directs that a trust fund of $25,000, which is to be held for her husband until his death, shall then be divided among various charitable institutions and $5,000 will go to the Women's Homeopathic Association.——The St. Vincent's Home and Maternity Hospital will benefit to a large extent in the estate of the late James P. McMahon, who left an estate of $13,000 to be divided between a number of charitable institutions.

Pennsylvania Hospital Off.—Base Hospital Unit No. 20 of the University of Pennsylvania left Philadelphia on April 1 on the beginning of its journey to France. The unit was organized last fall and started training, November 1. It consists of 150 men of whom probably more are athletes than in any other similar organization of men sent to France from this country. Major John B. Carnett is the medical head of the unit and his staff includes Major George M. Piersol, former surgeon at Camp Dix, Wrightstown, N. J., Capts. T. M. Edwards and William Bates who had charge of the field hospital at Fort Oglethorpe, Ga. The military commander is Major Thomas H. Johnson, U. S. Army.

RHODE ISLAND

Election of Officers.—At the meeting of the Pawtucket Medical Association at Pawtucket, the following officers were elected: Dr. Ardashes H. Merdinyan, president; Dr. Earl J. Mathewson, vice president; Dr. Conrad E. Thibodeau, secretary, and Dr. Stephen F. Hughes, treasurer.

Examinations of Practitioners, Etc.—In future examinations of candidates to practice medicine in the state, practical as well as written examinations will be required.——An appropriation of $1,000 has been asked for by the state board of health to stop illegal practice in the state.——Blanks have been sent out to all physicians on which to report venereal disease which have now been made reportable to the state board.

SOUTH DAKOTA

Officers Elected.—At the meeting of the state board of health and the state medical examiners at Pierre, Dr. Hampton Kenaston, Bonesteel, was made president; Dr. Charles E. McCauley, Aberdeen, vice president, and Dr. Park B. Jenkins, Waubay, secretary. The other members of the board are Dr. Arthur S. Jackson, Lead, Charles A. Bower, Mitchell. At the meeting, eleven applicants took the examination for licenses.

Personal.—Dr. Thomas B. Christian, South Bend, Ind., bacteriologist and pathologist, has been appointed city health officer of Aberdeen.——Dr. Daniel L. Scanlan has been elected president of the Volga Hospital Association which conducts a cooperative hospital.——Dr. Albert Sherrill, Camp Crook, suffered the loss of a finger on his left hand which had to be amputated on account of blood poison.——At a recent meeting of the Black Hills Medical Association, Dr. John W. Freeman, Lead, who recently retired as a member of the staff of the Homestake Hospital, was presented with a bronze loving cup suitably engraved. Honorary memberships in the association and in the state association were conferred on Dr. Freeman.——Dr. Charles E. McCauley, Aberdeen, a member of the state board of health has been given charge of the

work of enforcement of war measures in regard to venereal disease. He has appointed as assistant Dr. Robert S. Hart, Groton.

WASHINGTON

Miscellaneous.—At Spokane, work on the new $100,000 tuberculosis sanatorium at Edgecliff was started, March 18. ——The physicians of Everett, March 17, decided to shorten their working hours in order to keep up their civic, professional and patriotic duties during the war. They will close their offices in the evening.

Personal.—The mayor of Tacoma has appointed Dr. Edwin A. Layton health commissioner of schools and city health officer. The city council will give Dr. Layton a fund of $5,000 to be expended within the next thirty or sixty days to combat communicable diseases.——Dr. John B. Anderson, city health officer of Spokane, visited Portland, March 21, to study the details of Portland's system of handling and treating women suffering from social diseases, with the view of inaugurating a similar plan in Spokane.

WISCONSIN

Free Dental Work.—Among the cities in the state having provision for free dental work for schoolchildren not able to pay for such work are Milwaukee, Oshkosh, Racine, Janesville, Madison and Wausau.

Officers Elected.—At the meeting of the Fox River Valley Medical Society at Green Bay, Dr. Victor F. Marshall, Appleton, was elected president; Dr. Maurice D. Bird, Marinette, first vice president; Dr. Alfred P. Holz, Seymour, second vice president; Dr. Emile G. Nadeau, Green Bay, secretary-treasurer, and Dr. Charles J. Chloupek, Green Bay, was reelected censor.

Residential Sewage Disposal.—The October-December (1917) number of the state board of health *Bulletin* gives plans with details and numerous illustrations for water supply systems and sewage disposal plants for dwellings in unsewered towns and country districts. The plans for sewage disposal provide for tank disposal, dry well, filter bed and spray disposal of effluent, etc., with specifications of materials required, and advice as to the best method of installation.

CANADA

Public Health Department for New Brunswick.—The question of the establishment of a department of public health for New Brunswick is under consideration by the legislature of that province.

Personal.—Col. Charles A. Hodgetts, Ottawa, medical adviser to the Canadian Conservation Commission, who has been overseas for three years or more as Red Cross commissioner, has resigned and his resignation has been accepted.

General News.—The Ontario Temperance Act has been amended in that section relating to physicians writing prescriptions for medicinal purposes. The law now requires that, when writing an order on the vendor, the physician must attach thereto a certificate to the effect that "the quantity of liquor therein mentioned is the minimum quantity necessary for the patient for whom it is ordered."——Fifth year medical students of McGill University, Montreal, will again dispense with their summer holidays this year, and by studying until next autumn will win their degrees earlier and go overseas with the Canadian Army Medical Corps. The request for this was made by the students themselves, of whom there are seventy-one enrolled in the class.——Free distribution of diphtheritic antitoxin was begun in the province of Saskatchewan last September.

GENERAL

Bequests and Donations.—The following bequests and donations have recently been announced:

The United Hebrew Charities, New York City, $400,000, other Jewish charities from $6,000 to $75,000, amounting to more than $1,000,000, after the death of testator's widow, by the will of Ludwig Dreyfus, New York City.

Examination of Unduly Toxic Arsphenamin by Hygienic Laboratory.—In view of the reports in current medical literature of untoward results from the use of arsphenamin and neo-arsphenamin, Dr. G. W. McCoy, director, Hygienic Laboratory, Washington, D. C., requests that samples of any lots of these arsenicals which have shown undue toxicity be forwarded to the Hygienic Laboratory for examination. In sending these samples it should be ascertained that the lot number is the same as that of the ampules used on patients. The samples sent should, if possible, be accompanied by a brief note stating the approximate body weight and age of the patient, the dose and dilution of the drug given, the symptoms and result; that is, whether fatal or not.

A Warning.—The Journal has repeatedly published warnings against fraudulent canvassers and collectors. The most frequently worked swindle during the past few years has been an attempt to secure subscriptions on the grounds that the solicitor is a contestant for a prize in the form of a scholarship in some educational institution to be awarded to the one who sends in the most business in a certain length of time. This scheme has been worked under the names of the Cornell Educational Association, the Michigan Educational Association, the National Educational Association, the National Society of Universities, etc. The most recent is from Kokomo, Ind., where a physician has been swindled by a solicitor working under the name of the Pennsylvania Engineering Committee of Pittsburgh. Again we remind our readers that no one is authorized to solicit subscriptions or collect money for any of the publications of the American Medical Association unless he carries credentials bearing the seal of the Association.

CENTRAL AND SOUTH AMERICA

Public Health in Honduras.—It is announced that a Direccion General de Salubridad has been created in Honduras.

Prohibition in Colombia.—The authorities in Colombia are studying the question of drastic legislation for repression of alcoholism.

Ankylostomiasis in Ecuador.—The government of Ecuador has recently voted funds to enable the public health service to carry on an active campaign against this disease.

Prohibition in Peru.—The legislature has recently passed a law which has been signed by the president and which prohibits the sale of alcoholic liquors on Saturdays and Sundays.

Medical School in Paraguay.—The medical department of the national university of Paraguay, at Asuncion, has been closed for some time. Steps are now being taken to reopen it.

Lenthening of the Medical Course in Uruguay.—The *Cronica* of Havana states that the medical department of the University of Montevideo has petitioned the government to lengthen the medical course to seven years.

Banquet to Professor Gastañeta.—In New York, the Rockefeller Institute recently tendered a banquet to Dr. G. Gastañeta, subdean of the medical department of the University of Lima, Peru, who has been on a brief visit to the United States.

Scholarship for Nicaragua Student.—The Rockefeller Foundation has awarded a scholarship to Miss de Estrada of Nicaragua to continue her studies in bacteriology, tropical medicine and preventive medicine at the University of Pennsylvania and at Johns Hopkins.

Interchange of Professors.—Drs. C. Chagas and V. Brasil of Rio de Janeiro have been appointed by the Rockefeller Foundation president and secretary of the consulting board for Brazil to pass on the professors for interchange and the candidates for the Foundation's pensions.

Garcia Treatment of Leprosy a Failure.—A committee appointed by the Academia de Ciencias of Cuba to study the Garcia plan of treatment of leprosy has reported that the Hansen bacilli were found still in the lymph and mucous secretions of patients after a thorough course of this treatment, and the improvement in the general health observed in some of the patients was no more than can be realized by the usual measures. The verdict was therefore unfavorable.

Antivenereal Dispensaries at Montevideo.—Five conveniently located and well equipped free dispensaries have been opened at various points in Montevideo, in addition to the central dispensary, for consultation and treatment in venereal diseases. They are installed in hospitals or similar public institutions, and are in charge of specialists selected by the Consejo Nacional de Higiene or the Asistencia Publica. No discrimination is to be made as to social station among the applicants. The work is under the auspices of the board of the Asistencia Publica Nacional, of which Dr. Martirene is president.

The Medical Journals of South and Central America.—In every one of the twenty-one countries of South and Central America from one to twenty-three medical, pharmaceutical, dental or veterinary journals are published regularly. Brazil

has the largest number, Cuba has twenty-two, and Argentina sixteen. A list of 104 was recently published in the *Vida Nueva* of Cuba—a total of seventy-seven strictly medical journals and four or five pharmaceutical in the twenty republics south of the United States. Their articles are authorities on tropical medicine, snake bites, leishmaniasis, echinococcus disease and a number of other lines in medicine. Now that the German medical journals are in eclipse, so far as America is concerned, the world begins to realize that much of the prestige of the German medical journals was due to the fact that the exceptionally important articles by workers in other lands were often sent to be published in German medical journals at the same time that they were published in the writers' home journals. Naturally, the German medical journals got the credit for the articles because they had a wider circulation.

FOREIGN

Pneumonic Plague in China.—Dr. Percy T. Watson, in charge of the medical work of the American Board of Commissioners for foreign missions at Fanchow, states that the plague of pneumonia which has recently appeared in Mongolia, and in that part of the Shang-Si province which is north of the great wall, has been definitely demonstrated to be pneumonic plague.

Testimonial to Pekelharing.—The seventieth birthday of the well known authority on physiologic chemistry and histology, Prof. C. A. Pekelharing, of the University of Utrecht, falls on July 18, and his friends and pupils are collecting a fund to erect a tablet in his honor or endow the laboratory for physiologic chemistry there. Besides his early work on beriberi, fibrin ferment and the functions of the lymphoid tissue, he has recently published works on the influence of inorganic salts on the lipase of the pancreas, of phosphatids on coagulation, on the activation of blood serum, etc. The secretary of the committee in charge of the testimonial is Dr. C. J. van Hoogenhuyze, Banstraat 8, Amsterdam.

Deaths in the Profession Abroad.—G. Filomusi-Guelfi, professor of legal medicine at the University of Pavia and author of numerous works on forensic medicine, aged 62.——**G. A. Petrone,** docent in pediatrics at the University of Naples, aged 44.——The *Nederlandsch Tijdschrift* reports the death of the physiologist, Prof. **E. Hering** of Leipzig, aged 84. He occupied the chair of physiology at Vienna and Prague for a time but has been connected with the University of Leipzig since 1895. Some of his numerous works on physiology have been translated into other languages, including his "Memory and the Specific Energies of the Nervous System."——It reports further the death of the urologist, Prof. **H. Lohnstein** of Berlin, editor of the *Allg. med. Central-Zeitung* and founder in 1895, with Casper, of the *Monatsberichte der Krkten des Harn- und Sexualapparates,* aged 53.——**D. E. Sulzer,** a leading ophthalmologist of Paris, on the editorial staff of the *Annales d'Oculistique,* aged 60.——**T. de Speyr,** also a well known Swiss ophthalmologist, residing at Chaux-de-Fonds, aged 50.

CORRECTION

Distinguished Service Award.—We are informed that the award mentioned April 6, p. 1006, was to Lieut. Raymond Neel Davis, M. R. C., formerly of South Carolina.

PARIS LETTER

PARIS, March 7, 1918.

Prostheses for the War Cripples

In order that a war invalid who has a crippled arm or leg or a stump may take up useful work, he has to be supplied with an appropriate apparatus. The minister of war regards a prosthesis of this kind as an integral part of the care which should be given the wounded by the Service de Santé. His aim is to give each war invalid an artificial arm or leg, not merely the simplest form, the peg leg, but in each case the apparatus needed to overcome the effects of the mutilation so that the man can practice a trade or other remunerative occupation. It must be realized, however, that the carrying out of this ideal is far from being an easy matter, not only on account of the expense but also because of the lack of workmen to make the artificial limbs. When the state issued these orders, the delivery of the needed appliance was delayed in some instances for a long time, so that more than once the Service de Santé was forced to let these mutilated men who needed an artificial leg leave with a peg leg, stiff and hard. To be sure, private initiative and funds have supplemented and completed the work of the state. One of these institutions is the Fédération nationale d'Assistance aux mutilés des Armées de terre et de mer, which was established toward the end of 1914 and has since donated these appliances to the war cripples. Although the minister of war had requisitioned the entire production of prostheses, at the request of the federation, he authorized the manufacture of apparatus after an examination of each case. The federation has also adopted the principle of donating apparatus only when the prosthesis furnished by the state is insufficient to meet the professional needs of the patient. In fact, its activities are restricted almost entirely to those mutilated who have had a limb or limbs amputated and who are resident in the schools of reeducation and whose special needs the federation is able to appreciate thoroughly.

EVOLUTION IN CONSTRUCTION OF PROSTHESES

It is interesting to note the evolution that has taken place since the beginning of the war in the construction of these appliances for the mutilated. At first, the complicated prostheses, fragile and cumbersome, were considered to be veritable prodigies of ingenuity. Now these complicated appliances have been discarded by the great institutions in France for vocational rehabilitation of the wounded, as well as by the industrial establishments which employ these mutilated. The principle held in view is that the patient should rely mainly on what physical aptitude he has left, and when he has to use an orthopedic appliance, it should be a simple apparatus, solid, not expensive, one which can be replaced or repaired easily. At first the aim was to construct a sort of universal claw (*pince universelle*) in cases of mutilation of the upper extremity so as to have an apparatus that will be useful generally and supply all needs. Among the more ingenious apparatus of this kind are the claw of Dr. Amar, the claw of Louis Lumière, and the claw d'Estor. All these appliances are of value. They enable the wearer, with experience and training, to do certain kinds of work with some skill, as, for instance, the work of a joiner or a fitter. On the other hand, these appliances are not suited for the agriculturist. It must be remembered, however, that it is impossible to create an apparatus that is suitable for all occupations. In each trade it is necessary to supply the mutilated with a carrying tool or claws of various forms adapted to the different needs.

WORKING "HANDS"

This has led to the designing of artificial working hands, *mains de travail.* There is the hand of the gardener; the hand of the wine grower; the hand of the laborer, and the hand of the digger; the hand of the joiner, the chair caner, the jeweler, the printer, the letter carrier, and even the mechanician. These artificial working hands do not conform to the shape of the anatomic hand. The mechanism is extremely simple, often rudimentary, not expensive, but adapted to the complementary movements that the patient needs. The object is not to restore the anatomic shape, but to restore function. How were the *mains de travail* created? The thing is very simple. When the mutilation involves the right arm, the man should first be taught to become left handed, that is to say, he should learn to use his left hand just as well as he formerly used his right. This once accomplished, it follows that after loss of one arm, either the right or the left, there is need to supply only the missing arm or hand. Consequently, one need only create a complementary left member, a simple auxiliary of a healthy right arm. It is sufficient, to meet the exigencies of any trade, to specify the functions of the left hand during the course of working, and to seek artificial means to supply that left hand. For this it was necessary to study at first on normal, non-mutilated workers the movements, attitudes and different positions of the left hand in each trade. By dissecting thus, as it were, carefully the various phases of the work of the left hand it was possible to trace, step by step, all the things that the left hand had to do in the practice of the trade. It was found, strange to say, that the movements of the left hand, in general, are very simple, not very numerous, acting only along a single axis and often in a constant direction. It was this method of dissociation of the movements that has enabled Dr. Boureau to supply a left hand for many trades with the aid of one or two simple devices. He has thus created a whole series of *mains de travail* which are very ingenious and which render excellent service, notably for the readaptation of the mutilated for agricultural work.

Death of Dr. Baréty

Dr. Alexander Baréty, former intern in the hospitals of Paris, administrator of civil hospitals, former vice president of the Conseil général des Alpes-Maritimes, recently died in Nice, aged 74.

LONDON LETTER

London, March 12, 1918.

Compulsory Rations

As stated in a previous letter, a system of compulsory rationing is in vogue for the whole civilian population. The allowance per week is 1¼ pounds of meat, 4 ounces of butter or margarin, and 8 ounces of sugar. Other articles of diet, such as bread or fish, have not yet been rationed. A general scheme such as this cannot be applied to every person regardless of health or the work performed. It has been found necessary, therefore, to introduce the following regulations on the advice of the Committee of Reference of the Royal College of Physicians and of Surgeons, and of the Central Medical War Committee, that for the time being these can be allowed only as follows: 1. Extra sugar shall be allowed only those persons having difficulty in swallowing solids because of organic disease, for example, in cancer of the tongue, cancer of the esophagus, and gunshot wounds of the jaws. 2. Extra meat and fat may be allowed for patients suffering from diabetes and from tuberculosis, and also from celiac disease and pancreatic insufficiency. No extra meat can be allowed for making beef juice, beef tea or broth. 3. Priority may be granted for milk as follows: In cases of acute illness, for example, pneumonia, typhoid and acute abdominal conditions, the physician in attendance may give a certificate, on the receipt of which the milkman shall be empowered to supply the quantity of milk for one week. This certificate shall not extend for longer than one week, unless permission has been obtained from the local food office. Extra milk may also be allowed for pregnant and suckling women, for invalids suffering from the following chronic diseases: nephritis, tuberculosis, certain gastric and intestinal conditions, for example, gastric and duodenal ulcers, gastrostaxis, enteritis, dysentery and diarrhea; recognized diseases and disorders associated with malnutrition, and for patients who are unable to take solid food. There is no disease for which cream is allowed. For tuberculous persons in sanatoriums and hospitals, the following is the weekly allowance:

WEEKLY ALLOWANCE FOR TUBERCULOUS

	For Persons without Much Constitutional Disturbance		For Persons with Constitutional Disturbance	
	Men	Women	Men	Women
Milk	14 pints	14 pints	21 pints	21 pints
Meat (including suet)	3½ lb.	3 lb.	3½ lb.	3 lb.
Bacon	½ lb.	½ lb.	½ lb.	½ lb.
Fish	½ lb.	½ lb.	1 lb.	1 lb.
Cheese	½ lb.	½ lb.	4 oz.	4 oz.
Oatmeal	½ lb.	½ lb.	½ lb.	½ lb.
Pulses	½ lb.	½ lb.	.....	.....
Bread	4 lb.	3 lb.	3 lb.	3 lb.
Flour	½ lb.	½ lb.	½ lb.	½ lb.
Potatoes	5 lb.	4 lb.	2 lb.	2 lb.
Cereals	¾ lb.	¾ lb.	¾ lb.	¾ lb.
Sugar	½ lb.	½ lb.	½ lb.	½ lb.
Jam, syrup, etc.	¾ lb.	¾ lb.	¾ lb.	¾ lb.
Margarin and other fats	10 oz.	10 oz.	10 oz.	10 oz.

The scale for children under 10 will be three fifths of the corresponding scale for the adult woman. It will thus be seen that the dietaries for the tuberculous considerably exceed the allowances for the general population.

The Future of the International Red Cross

In my last letter the torpedoing of the seventh hospital ship by the Germans was described. It is feared that there is no longer any doubt that seven officers and forty-seven of other ranks of the Army Medical Corps as well as eight women nurses have lost their lives. In the face of this barbarity the *British Medical Journal* asks, What is to become of the International Red Cross? Germany, which was a party to the conventions, has persistently broken, both on sea and on land, all her undertakings. Can she be admitted to any international organization of the Red Cross in the future? What guarantees can she give that any nation can accept? Further, what is the position of the Austrian Red Cross? It held an international Red Cross conference less than a year before the war, and though few atrocities have been traced to the Austrian empire, it has supported the Germans through thick and thin.

Smallpox in London

An outbreak of smallpox has occurred in the East End of London. Six cases have been reported. The public health authorities, especially those responsible for soldiers in training camps, are making every effort to localize the outbreak, and the soldiers have been warned about approaching the infected area.

Deaths

Ernest Charles Reyer, Indianapolis; Medical College of Indiana, Indianapolis, 1885; Bellevue Hospital Medical College, New York City, 1889; aged 53; formerly a Fellow of the American Medical Association; a member of the Indiana State Medical Association; formerly president of the board of health and charities in Indianapolis, and professor of diseases of the mind and nervous system in the Medical College of Indiana; died suddenly at his home, March 24, as a result of injuries suffered in a fall.

William Ogden McDonald, Brooklyn; New York Medical College, New York City, 1855; aged 81; a veteran of the Civil War; a pension examiner from 1877 to 1884, and later professor of anatomy and gynecology in the New York Homeopathic Medical College; a member of the American Institute of Homeopathy; died at his home, March 25, from senile debility.

Percival Lantz, Alaska, W. Va.; College of Physicians and Surgeons, Baltimore, 1891; aged 46; formerly a Fellow of the American Medical Association; a member of the West Virginia State Medical Association; formerly postmaster of Frankford, W. Va.; died at the South Baltimore Eye, Ear and Throat Hospital, March 23, from acute nephritis.

Died in the Service
WHILE ON FURLOUGH FROM CAMP WHEELER
Capt. Samuel Chandler Baker, M. R. C.,
U. S. Army, 1867-1918
(*See The Journal, April 6, p. 1023*)

William Aloysius Dunn, Boston; Harvard University Medical School, Boston, 1875; aged 64; a member of the Massachusetts Medical Society; formerly a trustee for the Institution for the Feebleminded and the Boston City Hospital; for six years a member of the school board; died at St. Vincent's Hospital, New York City, March 28.

Charles Harvey Glidden, Little Falls, N. Y.; College of Physicians and Surgeons, Columbia University, New York City, 1881; aged 61; a Fellow of the American Medical Association; a member of the staff of the Little Falls Hospital; died while on a visit to his sister in Holley, N. Y., March 25.

William Eugene Buell, San Francisco; College of Physicians and Surgeons, San Francisco, 1900; aged 42; formerly a Fellow of the American Medical Association; died at the Union Iron Works Company Employees Hospital, San Francisco, February 4.

Rolandus G. Walker, Denver; Cleveland College of Physicians and Surgeons, 1904; aged 50; formerly a Fellow of the

American Medical Association; a member of the Colorado State Medical Society; died at his home, March 21, from pneumonia.

Lemuel Offut, Greensburg, Pa.; University of Maryland, School of Medicine, Baltimore, 1876; aged 66; a Fellow of the American Medical Association; at one time president of the Westmoreland (Pa.) Hospital staff; died at his home, March 25.

Lieut. Mark Beach, M. R. C., U. S. Army, Clinton, Kan.; Kansas Medical College, Topeka, 1903; aged 44; formerly a Fellow of the American Medical Association; a member of the Kansas Medical Society; died at Fort Sill, Okla., February 15.

Edward James Caldwell, West Chester, Iowa; Keokuk Medical College, College of Physicians and Surgeons, 1902; aged 45; formerly a member of the Iowa State Medical Society; died at his home, March 21, from Bright's disease.

Alexander A. E. McCandless, Pittsburgh; Jefferson Medical College, Philadelphia, 1870; aged 68; former coroner, treasurer and sheriff of Allegheny County; died in the Allegheny General Hospital, Pittsburgh, March 23, from pneumonia.

Capt. Harry James O'Bryan, M. C., Minn. N. G., Watertown, S. D.; Barnes Medical College, St. Louis, 1902; aged 49; a Fellow of the American Medical Association; died on duty at Fort Snelling, Minn., April 3, from pneumonia.

John Henry Joyce, Buffalo, Texas; Missouri Medical College, St. Louis, 1877; aged 63; formerly a Fellow of the American Medical Association; a member of the Texas State Medical Association; died at his home, March 23.

Died in the Service
AT FORT SILL, OKLA.
LIEUT. MARK BEACH,
M. R. C., U. S. A.,
1874-1918

Saram R. Ellison, New York City; McGill University, Faculty of Medicine, Montreal, 1873; aged 66; formerly a member of the Medical Society of the State of New York; died at his home, March 26, from pneumonia.

Columbus Epaminondas McCoy, Bozeman, Mont.; Vanderbilt University Medical Department, Nashville, Tenn., 1895; aged 46; a Fellow of the American Medical Association; died at his home, March 22, from aneurysm.

James Robert Kistler, Kansas City, Mo.; Jefferson Medical College, 1879; aged 63; formerly a member of the Missouri State Medical Association; died at his home, March 23, from heart disease.

James Molland Greenslade, Lima, Ohio; Rush Medical College, Chicago, 1899; aged 65; for eleven years superintendent of the schools of Lima; died at the City Hospital, March 21.

Theron Dickey Lockhart, Chicago; Trinity Medical College, Toronto, 1896; aged 45; formerly a member of the Illinois State Medical Society; died in Birmingham, Ala., March 22.

George W. Grimes, Carlisle, Ky.; University of Kentucky, Medical Department, Louisville, 1883; aged 58; formerly a druggist; died at his home, March 22, from uremic poisoning.

Oscar August Bast, Brooklyn; Long Island College Hospital, Brooklyn, 1905; aged 35; founder of the Ridgewood Sanitarium; died at his home, March 27, from pneumonia.

John Augustus Walther, New York City; Columbia University, College of Physicians and Surgeons, New York City, 1876; died suddenly at the Memorial Hospital, March 27.

Marriages

CAPT. URBAN BUNYON HARRIS, M. R. C., U. S. Army, on duty at Camp Funston, Kan., to Miss Mary Holabird, both of Chicago, March 30.

MATHILDA OLSEN ENNIS, Chicago, to Mr. George A. Cowden of El Centro, Calif., at San Diego, Calif., January 1.

LIEUT. JAMES WALTER WELLS, M. C., Ill. N. G., to Miss Melissa Kirkpatrick, both of Waltonville, Ill., March 22.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

HALL'S CATARRH CURE

Another Victim Tries to Get the Hundred Dollar Guarantee

"Hall's Catarrh Cure" is well known to readers of THE JOURNAL. This mixture of alcohol, potassium iodid, sugar and small amounts of some vegetable extractives has for many years been advertised under the claim that its manufacturers would pay "$100 Reward for any Case of Catarrh that can't be cured" by it. It was the manufacturer of "Hall's Catarrh Cure," Cheney, a power in the "patent medicine" world, who devised the "Red Clause." Mark Sullivan showed in *Collier's,* how this clause, when introduced into the advertising contracts made by "patent medicine" manufacturers with newspapers, effectually whipped the papers into

CANADA UNITED STATES

Photographic reproduction (reduced) of the labels of "Hall's Catarrh Medicine" as sold in Canada and the United States, respectively. Comparison of the labels shows that the presence and amount of alcohol is admitted where the law demands it (in the United States), but no mention is made of it in Canada. While the stuff is called a "cure" in Canada, where there is no penalty for false and fraudulent therapeutic claims, it is a "medicine" in the United States. In the United States also the "$100 Reward" does not appear on the trade package.

line to defeat any public health legislation that might be inimical to the "patent medicine" business.

Long after the word "cure" had been taken off the labels and trade packages of the "patent medicines" made by the smaller fry in the nostrum world "Hall's Catarrh Cure" blatantly continued to defy the federal authorities. It is only within comparatively recent times that the name of the nostrum has been changed to "Hall's Catarrh Medicine" and this, as THE JOURNAL pointed out not long ago, only in the United States. It is still a "cure" in Canada!

The utter worthlessness of the hundred dollar "guarantee" to "cure catarrh" has been commented on before. Some years ago THE JOURNAL recounted the case of a man who, after taking twenty-six bottles of "Hall's Catarrh Cure" declared that he was worse instead of better and asked for the hundred dollars. F. J. Cheney & Co.'s reply was that they would "not feel at all justified in refunding the money paid for this

trial [!] of the medicine" as "many cases require much more than you have taken for a cure"! Nearly three years ago we received a letter from a man who claimed to have taken thirteen bottles without results. He had written, he said, to the Cheney concern asking, not for the hundred dollars reward, but "for only one-half the price of the medicine." But: "They will not return a cent." The man was even so unsophisticated as to complain to his two home papers, that were carrying the Hall "guarantee," and expressed surprise that he was unable to get any satisfaction and, in fact, "the deceitful advertisements still appear in both papers."

Now come some letters from a Canadian, which speak for themselves:

AMERICAN MEDICAL ASSOCIATION,

Dear Sirs:—I heard of your Association through a circular published by the Metropolitan Life Insurance Co. I have catarrh and last July I commenced taking Hall's Catarrh Cure. After taking thirty (30) bottles of this medicine and receiving no benefit whatever, I wrote F. J. Cheney & Co. *re* their guarantee. They sent me the enclosed letter dated Dec. 20, 1917.

TANLAC TESTIMONY FROM THE TOMBS!

[*No. 3*]

Cumberland Evening Times.

S. FRIDAY MARCH 15, 1918

FOOD REPELLED FOR MANY YEARS

Cumberland Grocer Says Tanlac Brings Back His Lost Health

A. L. Wingert, 171 North Centre Street, has been in the grocery business for fifteen years in Cumberland, prior to his recent retirement because of ill health.

"I have not felt as I should in many years, declared Mr. Wingert. "I had absolutely no desire for food. Pains in the stomach and a dull listless feeling after eating were not uncommon. I sent for a bottle of Tanlac and began using it, according to directions.

"Tanlac has done me a wonderful lot of good. My health is surely coming back to me. I have a ravenous appetite and everything I eat digests perfectly—thanks to Tanlac. I simply recommend Tanlac to anyone in Cumberland who suffers as I did."

Tanlac is now being specially introduced and explained in Cumberland at Lichtenstein's drug store, by Mr. Rivenburgh, the Tanlac Man.—Advertisement.

A TRUE COPY. CERTIFIED. MAR 18 1918

STATE OF MARYLAND CERTIFICATE OF DEATH

Allegany. Cumberland. 9 Ward.

Alfred Lenahan Wingert.

Male. White. Married. 59 yrs. 14 ds.

Feby. 16, 1853.

Merchant. Grocery Store.

John Wingert. Mary Wright.

Mar. 9, 1918.

Chronic Interstitial Nephritis.

Chronic Endocarditis. 10 m.

Mch. 11, 1918. Cumberland, Md.

171 No. Centre St.

Mar. 12, 1918.

Note: The writer of the testimonial had been dead nearly a week when his testimonial appeared.

I answered this and received the one dated December 20, 1917. After some inquiry, I discovered that they could not advertise this medicine as a "cure" in the U. S. A., therefore, it is "Hall's Catarrh Medicine." I wrote and told them all this and also that it would not cure catarrh, and asked them to live up to the terms of their guarantee. In answer I received the letter dated March 7, 1918. I am writing them today enclosing a druggist's certificate that I bought and paid for the medicine, and a certificate from a local doctor that I am suffering from nothing except catarrh. I also told them I was taking the matter up with your Association.

Any information which you might give me as to how to proceed would be appreciated. Can you tell me who to write to in the State Legislature in the Capital of Ohio?

Here is the letter of December 7, referred to above, received from F. J. Cheney & Co.:

Dear Sir: It is very seldom that anyone takes as much medicine as you claim without deriving some benefit from its use. The only way we can account for this is that your trouble is complicated with some other disease, which, however slight, tends to retard the action of the medicine.

Hall's Catarrh Cure will do what we claim for it,—cure catarrh or deafness caused by catarrh—and if your trouble is wholly catarrhal, we can see no reason why you as well as so many others cannot be cured by its use.

Yours, F. J. CHENEY & Co.

Here is the second letter, that of December 20:

Dear Sir: As before stated, while many cases of catarrh have been greatly relieved by the amount of Hall's Catarrh Cure which you have taken, others require long continued treatment as cases vary and the medicine does not act alike upon all persons.

Hall's Catarrh Cure will do what we claim for it,—cure catarrh or deafness caused by catarrh. We do not claim to cure any other disease.

In your case, we would suggest that you increase the dose and see if you can obtain more relief from the larger doses. Of course, if the stomach should become deranged, decrease the dose. The addition of a third teaspoonful of ordinary baking soda in the water in which the medicine is taken is sometimes greatly beneficial.

Our guarantee is just as advertised.

Yours, F. J. CHENEY & Co.

The last letter, that of March 7 and the gem of the collection, follows:

Dear Sir: We have gone over your correspondence carefully and cannot find wherein you have stated anything whatever about your case. Kindly write us fully stating symptoms of the disease, action of the medicine upon you, when you commenced taking Hall's Catarrh Medicine and when you discontinued its use.

In regard to our guarantee, will say that we require that the patient prove that he has catarrh not complicated with any other disease; that he has taken strictly according to directions a sufficient number of bottles of Hall's Catarrh Medicine to cure his particular case and that he has not been cured. We believe that these restrictions are fair and are only such as would be required in any business transaction.

Hall's Catarrh Cure and Hall's Catarrh Medicine are one and the same. The name will be changed in Canada as soon as our advertising can be changed.

Yours, F. J. CHENEY & Co.

One gathers from the last letter of F. J. Cheney & Co. that before a victim can get his hundred dollars he has to prove (1) that he has taken enough Hall's Catarrh Cure "to cure his particular case" and (2) that his particular case "has not been cured"! Did ever a thimble rigger, caught at cheating, put up a flimsier defense?

Our Canadian correspondent's request that we suggest some one in the Ohio State Legislature to whom he might write relative to the matter discussed must, perforce, remain unanswered. Long experience has shown that state legislators are strongly averse to doing anything that will hurt local industries, especially when such industries are extensive advertisers in the local newspapers.

The information contained in the closing paragraph of the Cheney letter to the effect that Hall's Catarrh Cure and Hall's Catarrh Medicine are one and the same and that the Canadian labels will, before long, more nearly tell the truth, is interesting. We wonder whether the Cheney concern will also take off the Canadian label the hundred dollar "guarantee" which now appears on it. This guarantee does not appear on the United States label. Possibly the fact that the federal Food and Drugs Act makes lying on the label irksome may have something to do with it.

Health Officers.—An energetic health officer can control the local death rate if given a few years to do it; but to expect great results in the time he ordinarily holds office is beyond human power.—*Public Health*, Michigan.

Correspondence

"THE GROUND GLASS OBSESSION"

To the Editor:—The editorial with this title (THE JOURNAL, March 23, 1918, p. 852) I fear is far from the truth, especially in this part of the country. I wish you really knew how much there is going on along this line. Enclosed are a few cuttings; these are absolutely authentic reports from headquarters. If it stopped at ground glass it might be easy; but steel filings, stone, sand of a very irritating kind, aluminum or wire filings, and brassy metal powders have all been found, and chemicals, such as potassium bitartrate. In fact, it is a growing evil, and it does not stop at flour stuffs. We reported to the attorney's office cases of delicatessen canned goods all "doctored," and had a big round up this week after a most serious finding. I regret the necessity of asking you to withhold my name from publication for this time, but I am an old member and am on war and secret service work, and after the continual fires and explosions here, we cannot be too careful. In fact, we are not sufficiently careful in our subways and other important points. Hence, I advise research in lines scarcely dreamed of, and I am sure Prof. E. M. Chamot of Cornell can bear me out in this. There is urgent need of work of a microchemical nature, for example, in the steel and wood work of aircraft. In these, supports have been cut and lead substituted in such a way as to be undiscovered except by metallomicro-analysis. In one instance this resulted in three machines coming down and killing our boys. Hence, as a matter of government, war and medical necessity, THE JOURNAL, our standby and support in this great medical, scientific and serious work, should urge closer and more careful work and far more methods of discovery to combat this powerful and wide awake enemy.

AN ARMY SURGEON.

THE USE OF IODIN IN THE PREPARATION OF THE PATIENT FOR DELIVERY

To the Editor:—The use of tincture of iodin in the preparation for abdominal section has become so general that its value as an antiseptic is well established. That its use in obstetrics has not become more general is surprising, especially when its many advantages are considered. The maintenance of asepsis even in the normal delivery offers many problems that are not encountered in surgical work.

The main objection to the use of iodin in this connection seems to be that first, many skins in the region of the vulva cannot tolerate its use, and secondly, many patients complain bitterly of burning and smarting subsequent to its application.

During the past few months at the Grace Hospital we have used several preparations or strengths of the tincture and have concluded that tincture of iodin, one-third strength, or tincture of Iodine, U. S. P., one part, Alcohol, two parts, offers a preparation that is almost ideal for use in obstetric work. Tincture of iodin of this strength has been used in the preparation for delivery of nearly 200 patients, and in no instance have there been any signs of dermatitis or any complaint of undue smarting or burning on the part of the patients. I have also used this preparation as a final procedure for delivery in private practice practically as a routine measure during the past four months.

At the hospital our technic of preparation of the patient for normal delivery is as follows: At the onset of labor the usual bath and enema are given, and the patient is clipped and shaved at the vulva. At the time of delivery or vaginal examination, the vulva and inner thighs are washed carefully with sterile green soap and sterile warm water. The vulva and thighs are now irrigated from above with 2 quarts of mercuric chlorid, 1:1,000, poured from a pitcher. If delivery is not to follow immediately, a sterile towel is wrung out in the mercuric chlorid solution and folded over the vulva. If, however, delivery is to follow shortly, the skin and vulva are dried by means of a cotton sponge on a stick and the preparation of iodin described above is applied by this same means. An area about 9 inches square should be covered beginning at the labia, then to the mons, the inner surface of the thighs, and lastly the anus. Every point within the area should be covered by the stain. The sterile drapings are now put in place by the physician or nurse so that only those parts of the vulva and thighs that have been stained are exposed.

By means of this painting or staining and only by this means are we positive that every part of our field has been treated by a suitable antiseptic. We can see just what has been covered.

I feel that the iodin in this connection gives a finishing touch to our preparation that makes for better technic, and that this extra precaution against infection gives added assurance to the obstetrician.

In cases of precipitate birth in which, owing to lack of time, the proper preparation is impossible, it is nearly always possible to use the iodin at least.

It seems to me also that if the iodin preparation could become more general in patients in poor surroundings, among midwives and the like, owing to its staining properties disinfection might be made more thorough.

HERBERT THOMS, M.D., New Haven, Conn.

OPPOSITION TO THE NEW YORK HEALTH INSURANCE BILL

To the Editor:—THE JOURNAL (April 6, 1918, p. 1017) states that on the hearing on the New York health insurance bill, the bill had "the unanimous endorsement of the State Federation of Labor, the Women's Municipal League, Women's Trade Union League, and the Consumer's League of New York."

It ought to be of interest to the readers of a purely medical journal to hear that this bill was opposed by every county medical society in New York State as represented by Dr. Henry Lyle Winter, chairman of the Committee on Economics of the state society, and also by Dr. James F. Raney, chairman of the Legislative Committee of the state society. The New York County Medical Society had four representatives to voice its opposition. The city of New York was represented by its new health commissioner, Dr. J. L. Amster, also in opposition to that bill. These are facts that others like myself, members of the American Medical Association and patrons of THE JOURNAL, are entitled to know as matters of vital interest and important news.

JOHN P. DAVIN, M.D., New York.

PREVENTION OF BLOOD CLOTTING BY DAKIN'S SODIUM HYPOCHLORITE SOLUTION

To the Editor:—We wish to record here very briefly a few facts with regard to the action of Dakin's solution on clotting. The solution used was obtained from the War Demonstration Hospital (Rockefeller Institute) freshly prepared every morning. Dog's, cat's and rabbit's blood flowed from an artery directly into Dakin's solution, one part of Dakin's solution to every five parts of blood. Such blood remains unclotted for ten or more days. For older solutions larger proportions must be used. The addition of a sufficient quantity of a calcium salt does not produce clotting. Neither does the blood become clotted by the addition of a foreign body, nor does fibrin form by whipping. The solution in this proportion produces a gradual laking of the red cells. When blood is drawn into an oxalate and centrifugalized, a clear plasma is obtained; when Dakin's solution is added to such plasma and the oxalate then neutralized by calcium salts, a clear, unclotted solution is obtained which can be kept for some time.

The addition of a tissue extract (thromboplastic substance, Howell) causes clotting of blood with Dakin's solution at any time. Blood which runs into Dakin's solution over body tissues is likely to clot. Whipping of blood kept fluid by Dakin's solution does not prevent subsequent clotting by tissue

extract. The prevention of clotting by Dakin's solution is evidently due to its action on the thrombin. Dakin's solution does not seem to prevent clotting of guinea-pig's blood in the proportion effective for dogs and rabbits. Blood of rabbits which received epinephrin clots in Dakin's solution within twenty-four hours.

The blood of dogs or rabbits which received intravenously Dakin's solution in the proportion of 7.5 c.c. to 1 kg. of body weight, drawn within four hours of the injection and kept at room temperature, remains fluid for several days. As a rule, such animals succumb sooner or later to such an injection. The sodium hypochlorite solution which we received from the hospital was slightly alkaline, but a simple alkaline solution equal in alkalinity to such a solution did not prevent clotting.

Our observations have among others the following practical significance: Dakin's solution employed in wounds with capillary bleeding does not sustain the continuation of a hemorrhage. This is probably on account of the presence of tissue fluid which neutralizes the anticoagulating effect of the solution employed. A detailed report will appear in the *Journal of Experimental Medicine.*

T. S. GITHENS, M.D., and S. J. MELTZER, M.D.,
New York.
Department of Physiology and Pharmacology, Rockefeller Institute for Medical Research.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

CHRONOLOGIC SCIENTIFIC DATA

To the Editor:—I am desirous of obtaining information as to the exact dates of certain events in medical history. If possible, please furnish me with the information requested below:

1. Exact date on which Dr. O. W. Holmes published his paper, discussing the contagious nature of puerperal fever.
2. Exact date in 1888 on which the Pasteur Institute was established.
3. Exact date in 1885 on which Pasteur began inoculation against hydrophobia.
4. Exact date in 1894 on which the use of diphtheritic serum was announced.
5. Exact date on which typhoid vaccination was announced.
6. Exact date on which chloroform was first used as an anesthetic.
7. Exact date in May, 1905, on which the discovery of the organism causing syphilis was announced.
8. Exact date on which American Medical Association was organized.
9. Exact date on which American Red Cross was organized.

R. C. WILLIAMS, M.D., Assistant Surgeon, U. S. P. H. S., Miami, Ariz.

ANSWER.—1. Feb. 13, 1843, Oliver Wendell Holmes read to the Boston Society for Medical Improvement his paper on "The Contagiousness of Puerperal Fever," which was published in the *New England Quarterly Journal of Medicine and Surgery,* April, 1843.

2. Nov. 13, 1888.

3. July 6, 1885.

4. *Deutsche medizinische Wochenschrift,* Dec. 4, 1890.

5. *Deutsche medizinische Wochenschrift,* Nov. 12, 1896.

6. Nov. 10, 1847.

7. Published simultaneously in the *Deutsche medizinische Wochenschrift,* May 4, 1905, and in the *Berliner klinische Wochenschrift,* May 29, 1905.

8. The American Medical Association was organized when a convention, representing all the organized medical societies, "resolved itself into the American Medical Association." This action was taken, May 7, 1847.

9. There was a Red Cross organization in the United States as far back as 1869. It was incorporated in 1881 and again in 1893 and in 1900. In 1904 the American Red Cross was entirely reorganized, and Jan. 15, 1905, Congress passed an act incorporating the present American National Red Cross and establishing the conditions that should shape its career. The incorporation papers for the Red Cross organization in 1881 were filed, October 7, at 3 o'clock.

CONTRACT SURGEONS

To the Editor:—Kindly give me some information about contract surgeons in our Army. Do salaries vary or are all paid the same amount? What is the salary? Would a specialist be assigned to his specialty in this contract service, or to any kind of work where he would be needed? A. G.

ANSWER.—According to the Act of Feb. 2, 1901: "In emergencies the Surgeon-General of the Army, with the approval of the Secretary of War, may appoint as many contract surgeons as may be necessary, at a compensation not to exceed $150 per month." According to the Manual for the Medical Department, contracts are entered into only by the Surgeon-General or by his authority. They are either general or special. A general contract obligates the contract surgeon to take station and change station as ordered. He is furnished quarters and receives pay as stipulated in the contract, and the travel, fuel and light allowances of a first lieutenant. He is expected to give his entire time to the public service. If the exigency requiring the employment of a contract surgeon is likely to be temporary, contracts are made for a term of three months or less; if its longer continuance is probable, the term is one year. In either event, it is subject to annulment when the services of the physician are no longer required.

Special contracts are for local service only at stations designated where the amount of service called for is not sufficient to warrant the assignment of a medical officer. No travel is required under such contracts. The physician contracted with is not expected to take station at the post or to give up his private practice except so far as it is necessary to do so in order to carry out his public duties. He is not furnished quarters or other allowances.

CONTRIBUTIONS FOR BELGIAN AND FRENCH PHYSICIANS

To the Editor:—A number of times recently I have noticed requests for surgical instruments to be donated and sent to various fields of usefulness. A woman whose husband was a prominent physician here up to the time of his death wishes to know where to send the balance of his instruments that they may be of the most service. They are in good condition, are for the greater part of the old style ebony handle days, are mostly bone amputating sets, etc., and include an old fashioned light wooden splint outfit.

C. W. ELLYSON, M.D., Waterloo, Iowa.

ANSWER.—The instruments may be sent to Dr. W. W. Keen, 1729 Chestnut Street, Philadelphia. Dr. Keen has asked those who have surgical instruments to spare to donate them to the civilian physicians of Belgium and France. Even old fashioned instruments can be disinfected, and they will prove of the greatest use when these physicians return to their devastated homes.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Little Rock, May 14. Sec., Regular Board, Dr. T. J. Stout, Brinkley; Sec., Homeopathic Board, Dr. W. B. Hughes, 900 Scott St., Little Rock; Sec., Eclectic Board, Dr. C. E. Laws, Ft. Smith.

GEORGIA: Atlanta and Augusta, May 30-June 1. Sec., Dr. C. T. Nolan, Marietta.

HAWAII: Honolulu, May 6. Sec., Dr. G. A. Batten, Box 375, Honolulu.

MASSACHUSETTS: Boston, May 14-16. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

NEVADA: Carson City, May 6. Sec., Dr. S. L. Lee, Carson City.

NEW YORK: Albany, Buffalo and Syracuse. May 21-24. Sec., Dr. W. J. Denno, Education Bldg., Albany.

Scarcity of Mercury in Denmark.—S. Lomholt writes to the *Ugeskrift for Læger* of Copenhagen to warn of the necessity for strict economy in the use of mercury. He says that most unexpectedly it has been found that the supply is cut off by the new American blockade policy, just when the supplies on hand were unusually low. He doubts whether the condition can be much improved, as mercury is used in the manufacture of munitions. No one seems to have foreseen the possibility of a scarcity of mercury. He suggests that mercury be given in treatment of syphilis by intravenous injection instead of the wasteful inunction method, with which only about 1 per cent. is absorbed.

Book Notices

FRESH-WATER BIOLOGY. By Henry Baldwin Ward, Ph.D., Professor of Zoology in the University of Illinois, and George Chandler Whipple, Professor of Sanitary Engineering in Harvard University. With the Collaboration of a Staff of Specialists. Cloth. Price, $6. Pp. 1111, with 1,547 illustrations. New York: John Wiley & Sons, 1918.

Fresh-water biology in North America has hitherto been a comparatively untilled field, as the earliest records of biologic research date back scarcely fifty years. The studies of Ward and Whipple, prepared with the aid of twenty-five skilled collaborators and recently published for textbook and reference use, give the literature an auspicious start. Each chapter concerns a simple group of organisms, whose life history is given in condensed form. Especially valuable for the student are the descriptions of the various methods of collecting, preserving and studying the organisms of the different groups. The first few chapters discuss general biologic factors. This discussion, however, is not confined to the introductory pages, as a later chapter on Rotifera includes an admirable description of the life processes that apply to all groups of many-celled organisms. Fresh-water life is roughly divided into two groups—plant and animal organisms. The plant group comprises the bacteria, or lowest type in water, the higher plants, and the omnipresent algae, the last being exhaustively treated. Classified at even greater length are the twelve animal groups, ranging from the Protozoa and the sponges up to the Mollusca and the aquatic vertebrates. The final chapter is an interesting study of those technical and sanitary problems that vex municipal health authorities and sanitary engineers. Here Whipple considers fresh water as a medium for conveying diseases either indirectly, through the breeding of mosquitoes, as in yellow fever and malaria, or directly, through the infection of drinking water and the aquatic food supply, as in typhoid, Asiatic cholera and dysentery. The chapter furnishes a wealth of practical information on such subjects as the elimination of bacteria in water by means of filtration, aeration and the use of chemicals; the treatment of sewage; the disinfection of swimming pools, and the various methods of killing algae and animal organisms and of checking their growth in reservoirs and standpipes.

SURGERY AND DISEASES OF THE MOUTH AND JAWS. A Practical Treatise on the Surgery and Diseases of the Mouth and Allied Structures. By Vilray Papin Blair, A.M., M.D., F.A.C.S., Professor of Oral Surgery in the Washington University Dental School. Third Edition, Revised so as to Incorporate the Latest War Data Concerning Gunshot Injuries of the Face and Jaws. Compiled by the Section of Surgery of the Head, Subsection of Plastic and Oral Surgery, Office of the Surgeon-General of the Army, Washington, D. C. Cloth. Price, $6. Pp. 733, with 460 illustrations. St. Louis: C. V. Mosby Company, 1917.

The enormous number of injuries in battle involving the mouth parts, with a large percentage of jaw fractures, which require the combined services of both the general and the oral surgeon, caused the Surgeon-General to establish a special division composed of general surgeons especially trained in plastic operations on the face and neck, and dental surgeons especially trained in the treatment of fractures and other jaw injuries. As chief of this division, Major Blair saw the need of a book covering this particular field, and therefore incorporated in this edition of his book the latest data relative to gunshot injuries of the oral region, thus correlating the mass of recent literature on this subject. The book reflects close association with the rapid changes in methods that have occurred since the opening of the war, and merits careful reading by every member of the Medical and Dental Corps. The chapters on plastics of the face and neck, fractures of the jaws, and anesthesia are exceptionally well presented and fully illustrated. The chapter on plastics occupies thirty-one pages and has thirty-five illustrations, many from cases in the author's practice; the chapter on fractures of the jaws occupies sixty pages and contains fifty-nine illustrations. The book is not confined to war surgery; it covers the entire field of oral surgery. The more important chapter titles include cleft palate, which is fully presented and illustrated, the regional anatomy, infections, hemorrhage, shock, wounds, ankylosis of the temporomandibular joint, fractures of the nasal bones and deformities of the nose, infections in and adjacent to the teeth, chronic infections of the mouth, diseases of the maxillary sinus, tumors of the mouth and jaws, affections of the salivary glands, tuberculosis of the cervical lymphatics, diseases involving the pharynx, motor derangements, and tic douloureux.

Medicolegal

Knowledge of Nature and Duration of Disease is Privileged

(Lombard vs. Columbia National Life Insurance Co. (Utah), 168 Pac. R. 269)

The Supreme Court of Utah holds that there was no error, in this section on a life insurance policy, in excluding, as privileged, the testimony of a physician, who attended the insured, as to the nature and duration of the disease of which the latter died. The court says that, under the Utah statute, the question as to how or when the physician acquired the information sought to be proved is immaterial. If it was information acquired while attending the patient which was necessary to enable the physician to prescribe or to act for the patient, then, under the statute, it would be privileged. The facts proposed to be proved in this case were that the insured died of cancer of the stomach and liver; that, after the physician had ascertained the fact of the disease, he considered it due the afflicted man to tell him of the seriousness of his condition and that it was incurable, and that after that the man wept and then voluntarily told the physician, without any further inquiry, that he had been sick for two years suffering with his stomach and pains in his back. Under the authorities the question of the admissibility or inadmissibility of the foregoing proposed testimony, under statutes similar to that of Utah, is not easily determined. And this court has determined, in common with many other authorities, that not all communications made to the attending physician are excluded under the provisions of the statute. But the fact that the insured was afflicted with cancer could become known to the physician only while attending the patient, and was, of course, necessary to enable him to prescribe for him. The knowledge that the patient died of that disease would also be a matter the physician would ascertain from his treatment of the patient. Clearly such facts would be privileged as being information acquired while attending the patient. The further fact proposed to be proved by the physician, as to the statement made by the insured, would not, standing alone, without other aid or explanation, prove or tend to prove the insured died of cancer, or prove the nature of the disease that caused his death. In addition, it must, the court thinks, be accepted as a fact, universally recognized not only by the medical profession but by every one, that a physician, in attending or prescribing for a patient, of necessity ought to know and does know, and does ascertain for that purpose from his patient, the duration of the disease, which, of necessity, must aid him in determining the nature of the treatment to be given, the patient's strength or ability to undergo surgical operations or take other severe treatment, and the likelihood of such treatment proving beneficial or proving fatal, as it did in this case. Such would seem to be accepted as a matter of common everyday knowledge, and, as such, recognized and enforced by the courts. The fact as to whether the disease to be treated is chronic or acute—in other words, its duration—surely is a part of the information that every physician would want to know and would need to know in the intelligent discharge of his duties, to enable him to prescribe for and treat his patient. Whether the physician acquired the information, as stated above, from voluntary statements of the patient, or whether it was acquired from investigation or inquiry on his part, it would, nevertheless, be included within the information privileged under the statute.

Society Proceedings

COMING MEETINGS

American Medical Association, Chicago, June 10-14.
Alabama State Medical Association, Birmingham, April 16.
Alpha Omega Alpha Society, Chicago, June 10.
American Climatological and Clin. Assn., Boston, June 5-6.
American Dermatological Association, Philadelphia, May 23-25.
American Gastro-Enterological Association, Atlantic City, May 6-7.
American Gynecological Society, Philadelphia, May 16-18.
American Laryngological Association, Atlantic City, May 27-29.
American Medico-Psychological Association, Chicago, June 4-7.
American Orthopedic Association, Washington, D. C., April 22-23.
American Otological Society, Atlantic City, May 28-29.
American Pediatric Society, Lenox, Mass., May 27-29.
American Proctologic Society, Chicago, June 10-11.
American Therapeutic Society, Richmond, Va., June 7-8.
Arizona Medical Association, Phoenix, April 24-25.
Arkansas Medical Society, Jonesboro, May 7-9.
Association of American Physicians, Atlantic City, May 7-8.
California State Medical Society, Del Monte, April 16-18.
Connecticut State Medical Society, Hartford, May 15-16.
Georgia State Medical Association, Savannah, April 17-19.
Illinois State Medical Society, Springfield, May 21-23.
Iowa State Medical Society, Fort Dodge, May 8-10.
Kansas Medical Society, Kansas City, May 1-3.
Louisiana State Medical Society, New Orleans, April, 16-18.
Maryland Medical and Chir. Faculty of Baltimore, April 23-25.
Massachusetts Medical Society, Boston, June 18-19.
Michigan State Medical Society, Battle Creek, May 7-9.
Mississippi State Medical Association, Jackson, May 14-15.
Missouri State Medical Association, Jefferson City, May 6-8.
Nat. Assn. for the Study and Prev. of Tuberculosis, Boston, June 6-8.
Nebraska State Medical Association, Omaha, May 7-9.
New Hampshire Medical Society, Concord, May 15-16.
New Jersey Medical Society, Spring Lake, June 25-26.
New York State Medical Society, Albany, May 21-24.
North Carolina State Medical Society, Pinehurst, April 16-18.
North Dakota State Medical Association, Fargo, June 19-20.
Oklahoma State Medical Association, Tulsa, May 14-16.
Oregon State Medical Association, Portland, June 27-29.
South Carolina Medical Association, Aiken, April 16-18.
South Dakota State Medical Society, Mitchell, May 21-23.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

March, 1918, **77**, No. 3

1 Functions of Woman's Hospital in Large City. E. B. Cragin, New York.—p. 353.
2 *Preliminary Report of an Operation for Cystocele. R. M. Rawls, New York.—p. 359.
3 Conflict of Clinical with Microscopic Evidence in Diagnosis of Tubal and Ovarian Pregnancies. J. W. Bovée, Washington, D. C.—p. 370.
4 *Effect of Ingestion of Desiccated Placenta During First Eleven Days of Lactation. Preliminary Report. L. G. McNeile, Los Angeles.—p. 377.
5 Pyelitis Complicating Pregnancy. A. B. Davis, New York.—p. 383.
6 Estimate of Radium Therapy in Uterine Cancer. W. S. Stone, New York.—p. 390.
7 *Unusual Ulcerative Process of Vulva. H. Schiller, Chicago.—p. 398.
8 Report of Fibromyxomatous Degeneration of Chorion with Four Consecutive Pregnancies in Same Patient. J. C. Applegate, Philadelphia.—p. 400.
9 Surgical Treatment of Cancer of Large Intestine. H. Shann, Brooklyn.—p. 403.
10 Disease Conditions in Older Babies Attributable to Prenatal Influences. R. G. Freeman, New York.—p. 459.
11 How Pediatrician and Obstetrician Can Cooperate. J. C. Litzenberg, Minneapolis.—p. 463.
12 What Pediatrician Can Do to Reduce Mortality in First Month of Life. G. Lippmann, St. Louis.—p. 469.
13 War Work in England, France and Germany with Special Reference to Care of Women During Pregnancy and Labor. M. Belt, Baltimore.—p. 474.
14 Reduction of Infant Mortality Due to Prenatal and Obstetric Conditions. F. V. Beitler, Baltimore.—p. 481.
15 Review of Wisconsin "Eugenics Legislation." M. F. Guyer, Madison, Wis.—p. 485.

2. **New Operation for Cystocele.**—The technic offered by Rawls is an extraperitoneal operation with a free mobilization of the bladder and its pillars. A small volsellum forceps is applied to the mucous membrane of the anterior vaginal wall about 1 cm. above the cervix and another forceps about 1 cm. below the external urethral orifice. Between these forceps a vertical incision is made through the mucosa and superficially into the underlying tissues. The incision is carefully carried forward until, in the midportion, the bladder can be demonstrated by blunt dissection. This blunt dissection is continued downward until the cervical attachment of the bladder pillars and the so-called uterovesical ligaments are demonstrated. The latter is cut with scissors, keeping well in midline to avoid severing any of the cervical attachments of the bladder pillars. The bladder is separated by blunt dissection, from the cervix upward to the peritoneal reflection and laterally well out to either side, and from the underlying pillars upward to the urethra and well out on either side. If there is a urethrocele, the dissection is carried up to the external urethral orifice. When the bladder is well mobilized, the bladder pillars are dissected from the underlying vaginal mucosa. The bladder and its lateral true ligaments are now freely mobilized and the latter are overlapped from side to side by transverse mattress sutures of medium kangaroo tendon, at the level of the internal os one or two sutures enter the cervical tissue. These sutures prevent anteroposterior shortening of the anterior wall of the vagina and draw the underlying fascia smoothly under the overlapping fascia. In addition the cervical suture reattaches the fascia to its original place on the cervix and forms a shelf on which the bladder rests. After the mattress sutures are tied, the free edge of the overlapping fascia is sutured, by interrupted sutures of fine kangaroo tendon, to the underlapped fascia. The paper-thin vaginal mucosa flap, caused by dissection, is now excised for a short distance on either side. Its edges are approximated in midline by interrupted suture of ten-day chromic catgut. To prevent a dead space between the fascia and mucosa a vaginal pack of iodoform gauze is used and is removed the fourth day after operation. The method is said to be applicable to all forms of cystocele, but when there is a complete prolapse of the uterus, other methods must be used in addition, to relieve the injury to the posterior segment of the "holding apparatus" and the injury to the supporting apparatus.

4. **Effect of Desiccated Placenta on Lactation.**—The results of McNeile's investigation do not warrant any definite conclusions. In the patients fed desiccated placenta there was apparently some change in the chemical composition of the milk during the first eleven days postpartum. The most marked change was an increase in the percentage of lactose and this was accompanied by a slight increase in the percentage of protein, and a slight decrease in the percentage of fat. There was no deficiency in the amount of milk in any of the cases receiving desiccated placenta, but the reverse was true in the cases which did not receive this agent. There was apparently a slight decrease in the initial loss of weight in the infants of mothers receiving the desiccated placenta, over those whose mothers did not receive it. At the end of eleven days the babies whose mothers received the agent were about 4 ounces heavier than those that did not.

7. **Ulceration of Vulva.**—Schiller's case was one of acute ulceration of the vulva, which was preceded and accompanied by chills and fever, burning and general malaise, acute ulcerations which had all the characteristics of ulcer mollia or soft chancre. The presence of a peculiar form of bacilli in all smears, the absence of all other microbes and the rather unusual clinical picture show this was not a case of one of the known and well studied and recognized ulcerative processes of the vulva, but with a lesion not previously described.

American Journal of Roentgenology, New York

March, 1918, **5**, No. 3

16 Development of Foreign Body Localization by Means of Roentgen Rays. J. T. Case, Battle Creek, Mich.—p. 113.
17 Inverted Comma Sign in Pulmonary Roentgenology. A. W. Crane, Kalamazoo, Mich.—p. 124.
18 Roentgenologic Study of Effects of Dust Inhalation on Lungs. H. K. Pancoast, T. G. Miller and H. R. M. Landis, Philadelphia.—p. 129.
19 Classification of Pulmonary Tuberculosis; Comparative Analysis of Different Methods Employed. F. H. Heise and H. L. Sampson, Trudeau.—p. 139.

American Review of Tuberculosis, Baltimore

March, 1918, **2**, No. 1

20 *Prognosis and Treatment of Tuberculous Lesions of Larynx. J. Dworetzky, Otisville, N. Y.—p. 1.
21 *Tobacco and Throat Complications in Pulmonary Tuberculosis. W. S. Duboff, Edgewater, Colo.—p. 21.
22 *Effect of Inhalation of Cigaret Smoke on Lungs. G. B. Webb. —p. 25.
23 *Typhoid Bacteremia During Course of Miliary Tuberculosis. A. Bloomfield, Baltimore.—p. 28.
24 Control of Careless Consumptive. D. R. Lyman, Wallingford, Conn.—p. 36.

20. **Treatment of Tuberculous Lesions of Larynx.**—Summarizing the treatment of tuberculosis of the larynx, Dworetzky says that the most important measures are: (1) the local and general prophylaxis; (2) the general treatment; (3) vocal rest in selected cases; (4) topical applications with a solution of iodin in increasing strengths.

21. **Tobacco and Throat Complications in Tuberculosis.**—A statistical study made by Duboff to determine the influence of tobacco as an etiologic factor in laryngeal involvement during the course of pulmonary tuberculosis. One thousand histories of tuberculous cases were studied. Of the 1,000 cases there were 793 males and 207 females (3.8-1). There were 299 throat cases (29.9 per cent.). Among the 793 men there were 240 throat cases (30 per cent.) and 368 (46 per cent.) light, moderate or excessive smokers. Of these 368 smokers 133 (36.1 per cent.) developed "throats," while among 425 nonsmokers there were 107, or 25.2 per cent. Among 207 women 59 had throat involvement (29 per cent.). Duboff concludes therefore that throat complications are probably no more frequent in tobacco users than in those who use no tobacco. Laryngitis, whether of specific character or not, is as equally common among women as among men in the course of pulmonary tuberculosis. In an equal number of men and women with pulmonary tuberculosis, the majority of throat involvements will be associated with a negative tobacco history. Tobacco obviously does not predispose to laryngeal complications.

22. **Effect of Cigaret Smoke on Lungs.**—There is no doubt in Webb's mind that the inhalation of cigaret smoke produces ronchi. The majority of cigaret smokers examined by him revealed the presence of bronchial ronchi, whereas the majority of nonsmokers, of pipe smokers and of cigar smokers do not show such evidence. Bull Durham causes more irritation than other tobaccos. In addition to ronchi, medium and coarse râles were observed in many heavy cigaret smokers. These râles would usually disappear after several coughs. Occasionally a very quiet vesicular murmur was observed. Regarding the soldiers who were found tuberculous and deemed unfit for service by Webb and his co-workers on War Department tuberculosis boards, the table indicates that a somewhat larger percentage of nonsmokers were discharged than smokers. Adding to the nonsmokers those who do not inhale and who do not show evidence of the production of ronchi, namely, the pipe and cigar smokers, the observation was made than 30 per cent. of those discharged, on account of pulmonary tuberculosis did not inhale cigarets. These studies would at least suggest that the inhalation of the smoke of cigarets does not aid in the outbreak of pulmonary tuberculosis.

23. **Typhoid Bacteremia in Miliary Tuberculosis.**—Two cases are reported by Bloomfield which are probably to be looked on as cases of miliary tuberculosis in whom an accidental invasion of the blood with typhoid bacilli occurred. A previous carrier state would most adequately explain the source of the organisms.

Annals of Surgery, Philadelphia

March, 1918, **67**, No. 3

25 *Effect of Trauma on Laryngeal Nerves. E. S. Judd, G. B. New and F. C. Mann, Rochester, Minn.—p. 257.
26 *Pneumococcus Peritonitis. P. Syms, New York.—p. 263.
27 Obstructive (Malignant) Jaundice. J. F. Erdmann, New York. —p. 273.
28 Acute and Subacute Pancreatitis; Report of Seven Cases. S. H. Watts, Charlottesville, Va.—p. 278.
29 Case of Accessory Pancreas with Intussusception. A. E. Benjamin, Minneapolis.—p. 293.
30 Splenectomy in Splenomegalies. A. J. P. Pacini, Brooklyn.—p. 299.
31 Inflammatory Tumors of Abdomen. P. I. Nixon, San Antonio, Texas.—p. 306.
32 *Osseous Cysts and So-Called Giant-Cell Sarcoma. E. Platou, Christiania, Norway.—p. 312.
33 Regeneration of Bone. A. A. Berg and W. Thalhimer, New York. —p. 331.
34 Traumatic Luxation of Sacro-Iliac Symphysis without Fracture of Pelvis. J. A. Simpson, San Francisco.—p. 348.
35 Fibrocystic and Cystic Lesions in Bone. G. Barrie, New York. —p. 354.

25. **Effect of Trauma on Laryngeal Nerves.**—From time to time, a complete or partial paralysis of the vocal cords is seen following thyroidectomy. The purpose of this research was to determine if possible the cause of such paralysis. The method of experimentation consisted in traumatizing the laryngeal nerves in a manner similar to that which could occur in an operation and subsequently to study the function of the vocal cords. It was seen that section of the recurrent laryngeal nerve produces complete paralysis of the vocal cord of the corresponding side which in all probability will be permanent. Ligation of the recurrent laryngeal nerve with linen, chromic catgut or plain catgut produces complete and probably permanent paralysis of the vocal cord of the corresponding side. Stretching the recurrent laryngeal nerves acutely in a manner similar but of longer duration and intensity than occurs in operation does not impair the function of the vocal cord. Stretching the recurrent laryngeal nerves for a long period, as over muscles, impairs the function of the vocal cords, but the impairment is probably due to the operative trauma and not to the stretching. Pinching the recurrent laryngeal nerves with a hemostat in a manner similar to that which may occur in an operation, produces temporary paralysis of the vocal cords. Restoration of function always occurs, the length of time necessary for restoration depending on the anatomic point at which the nerve was crushed. The time found necessary for complete regeneration of the nerve when injured in the areas usually traumatized by operation varies between thirty and sixty days. Exploration of the recurrent laryngeal nerves produces an effect on the vocal cords depending on the amount of trauma to which the nerves are subjected. Careful dissection will probably not produce any effect; the paralyses noted were probably due to pinching and other traumatic procedures.

26. **Pneumococcus Peritonitis.**—Syms maintains that idiopathic peritonitis does occur. Pneumococcus peritonitis is a rare disease, particularly affecting girls under 15 years of age. It may occur (1) as a single lesion, that is, alone; (2) as a sequel to some other site of infection, as the lung, pleura, etc.; (3) it may be followed by invasion of other localities, lung, pleura, etc.; (4) it may be a local manifestation of a general septicemia. Syms suggests that probably it is always that. Pneumococcus peritonitis is found in two forms: (1) the diffuse; (2) the encysted. These forms may represent different types or varieties of the disease or they may represent different stages of the disease. This is yet to be demonstrated. When the peritonitis is encysted the prognosis is good, spontaneous recovery may take place in one of several ways. Operation results in a high percentage of recoveries (86 per cent.). When the peritonitis is diffuse the prognosis is bad—death is the rule. Operation results in very high mortality (86 per cent.; in some series 100 per cent.). We recognize a symptom syndrome which should make diagnosis reasonably certain in typical cases. Operation should not be performed in the diffuse form. Operation should always be performed in the encysted form.

32. **Osseous Cysts and Giant-Cell Sarcoma.**—Platou reports cases showing that ostitis fibrosa with formation of tumor is not very rare. It occurs most often in young persons, but may also be found in persons of 50 to 60. Trauma appears in many cases to be an etiologic factor, although we are unable to explain how it can cause the disease or influence its genesis. The course of the disease is chronic with comparatively slight symptoms, rheumatic pains, and a slow swelling of the affected bone. The general health is good. Spontaneous fracture or bending of the bones may occur. The roentgenogram is often typical, but sometimes it is impossible to decide whether the diagnosis might not with equal correctness be given as sarcoma. The treatment is

exclusively surgical, all diseased tissue must be carefully removed, albeit with an obligation to be as conservative as possible. When the bone is opened the cavity is found to be more or less filled with a brownish red or sometimes yellowish, crumbling tumor tissue. The borderline is, as a rule, sharply drawn, although the same tissue may be found outside the periosteum. Under the microscope the destruction of the bone is seen to take place in a connective tissue with few cells, that is, fibrous marrow. Formation of new bone is also seen. The tumor-like tissue is built up partly by very polymorphous cells with numerous and uncommonly large giant cells, partly from a fibrous tissue with few cells. Mucous tissue with softening and formation of cysts also occurs. It is sometimes difficult to decide that the diagnosis is not sarcoma. The disease is benign even when the periosteum is perforated.

Archives of Ophthalmology, New Rochelle, N. Y.

March, 1918, **47**, No. 2

36 Distortions of Visual Fields in Cases of Brain Tumor: Chiasmal Lesions, with Especial Reference to Homonymous Hemianopsia with Hypophyseal Tumor. C. B. Walker and H. Cushing, Boston.—p. 119.
37 Headache as Result of Eyestrain. J. Dunn, Richmond, Va.—p. 146.
38 Ocular Anaphylaxis. Experimental Iridocyclitis. A. C. Woods, Philadelphia.—p. 161.
39 Surgical Treatment of Corneal Suppuration in Exophthalmic Goiter. A. Knapp, New York.—p. 173.
40 Narrowing of Pupil Does Not Lower Normal Intra-Ocular Tension (100 Cases). A. M. Carr, Urbana, Ill.—p. 77.
41 Dental Infection in Eye Diseases. W. F. C. Steinbugler, New York.—p. 182.
42 Eye Manifestations in Case of Polycythemia. M. Cohen, New York.—p. 192.

Archives of Pediatrics, New York

February, 1918, **35**, No. 2

43 *Pus Corpuscles in Infant Stool. J. Zahorsky, St. Louis.—p. 65.
44 Nineteen Cases of Hyperphasia of Thymus, Treated by Roentgen Rays. J. E. Beniamin and S. Lange, Cincinnati.—p. 70.
45 State Care of Feeb'eminded. C. W. Burr, Philadelphia.—p. 77.
46 Cyanosis, Icterus and Hemoglobinuria in Newborn (Winckel's Disease). M. H. Bass, New York.—p. 84.
47 Comparison of Three Methods of Determining Defective Nutrition. F. A. Manny, New York.—p. 88.
48 Care of Children of Pre-School Age. L. T. Royster, Norfolk, Va.—p. 95.

43. **Pus Corpuscles in Infant Stool.**—For two years Zahorsky has made a study of the infant stool for the presence or absence of pus corpuscles. He has reached the conclusion that a pus index of more than 10 indicates an infection of the intestinal mucous membrane; that an infectious process of some solitary follicles (or some other part of the mucous membrane) exists in many cases which are diagnosticated fermentative diarrhea. The so-called summer diarrhea is generally an infectious process.

Boston Medical and Surgical Journal

March 21, 1918, **178**, No. 12

49 Value of Physician and of Nurse in Social Service Work in Tuberculosis; Responsibility of Each to State and to Patient. J. B. Hawes, 2d, Boston.—p. 381.
50 Cases of Spontaneous Pneumothorax. P. H. Pierson, San Francisco.—p. 385.
51 Disabled Shoulders, with Especial Reference to Subacromial Bursitis. H. F. Day, Boston.—p. 389.
52 *Red Streak; Sign of Disease. E. A. Tracy, Boston.—p. 392.
53 Welfare Insurance and Factory. J. F. Curran, Worcester.—p. 394.
54 Control of Smallpox Epidemic by Vaccination. A. G. Gould, Akron, Ohio.—p. 395.
55 Preoperative Diagnosis by Roentgen Ray of Hair Cast of Stomach. F. W. O'Brien, Boston.—p. 396.

52. **Red Streak: Sign of Disease.**—The red streak is defined by Tracy as the reflex diastole lasting over fourteen seconds, evoked by stroking the face with a suitable instrument, such as a smooth wooden tongue depressor, with a pressure of approximately 2½ ounces. Preferably, a cheek is stroked, otherwise the forehead. When present in nonmedicated cases, invariably a diseased bodily condition was also present. The red streak may be taken, therefore, as a sign of disease. This view is based on a study of 392 cases in which the red streak was found present. In 310 of the cases—79 per cent. of them—a purulent condition in some part of the body was found; the remaining eighty-two cases being nonpurulent disease conditions of the body. For this reason, in nonmedicated cases, when the red streak is constantly present when tested for, the first thought is of pus. If thorough search excludes a pus focus, there is present infection, or a disturbance within the domain of endocrinology—a disturbance in the balance of the internal secretions—and manifested by lymphatism, hyperthyroidism, hyperplastic thymus, diabetes mellitus, etc. The relation of the red streak to the thyroid secretion has been shown in cases of mild myxedema, in which the normal reflex diastole of the face to stroking was absent. In these cases, on administering to them thyroid extract, the red streak appeared. Digitalis medication can also lengthen the normal reflex diastole of the peripheral blood vessels, and so give the red streak; likewise, pilocarpin. Functional heart cases—so-called nervous heart—is found associated with the red streak. Twelve cases were met with and tested. All gave the red streak. In four of these cases, the phenomenon of partial fading and intensifying of the streak, that is, active systole and diastole of the peripheral vessels, was visible. A practical illustration of the value of the red streak in diagnosis is furnished in focal infection. In several cases of apical abscesses, a positive diagnosis was made from the presence of the red streak associated with slight tenderness to pressure over the root that had at a previous period been opened and treated. The diagnosis in these cases of apical abscess was confirmed by roentgenogram or by evidence furnished on root extraction.

Bulletin of Canadian Army Medical Corps, Ottawa

March, 1918, **1**, No. 1

56 *Spur-Like Formations of Bone Following Amputation. J. D. Morgan.—p. 2.
57 *Infectious Ulceromembranous Stomatitis and Gingivitis: Vincent's Disease or "Trench Mouth." F. B. Bowman.—p. 4.
58 *Studies on Streptococci Recovered from Sick and Wounded Soldiers in France. R. H. Malone and L. J. Rhea.—p. 6.
59 Importance of Early Diagnosis of Syphilis and Relation of Dark Field Examination and Wassermann Reaction to Diagnosis. A. B. Jackson.—p. 11.
60 The Ballenger "Sealed-in" Abortive Treatment for Gonorrhea. A. B. James.—p. 12.

56. **Spur-Like Formations of Bone Following Amputation.**—In the routine roentgen-ray examination of amputation stumps following on war wounds, Morgan has seen, in the majority of cases, a shadow projecting from one or other (usually the internal or posterior) border of the bone shaft near its extremity. In one case this represents but a small spicule; in another, a large thick spur; in a third, the impression given has been of the presence of a "wing" of bone. As a rule these project in an upward direction. They are frequently the source of considerable pain and discomfort, and are responsible for the persistence of a discharging sinus. Their presence, consequently, often necessitates a reamputation. Occasionally they recur following this operation. The presence of these spurs is one of the principal causes necessitating the reamputation of a stump. These operations have been very frequent during the past three years. It is obviously a matter of great practical importance, therefore, to prevent the formation of these spurs in the first place. Can this be done? Morgan agrees with Steiger that satisfactory results can be obtained by any of the three methods, provided (1) that the operation is properly performed; (2) that primary union occurs, and (3) that the stump is at an early stage accustomed to bear weight, and can thus adapt itself rapidly to its new functions.

57. **Infectious Ulceromembranous Stomatitis and Gingivitis.**—One thousand men were examined by Bowman in camp, both clinically and bacteriologically, to learn, if possible, the number of men who cleaned their teeth carefully and the number of men who did not, and the number of men in each of these groups showing Vincent's organisms present in numbers sufficient to be diagnostic; also the numbers of cases of clinically infectious gingivitis in each of these groups. The men examined may be divided into two classes: those with

clean and those with unclean teeth. In the first group there were 816 men, and 314, or 38.4 per cent., of these showed Vincent's organisms present, but very few in number; 20, or 6.4 per cent., showed large number of spirochetes and fusiform bacilli, and were, clinically, positive cases. In the second group there were 184 men, and 139, or 75.6 per cent., of these showed a few Vincent's organisms present; while in 59, or 32 per cent., the organisms were present in preponderating numbers, and these cases were all clinically positive. Thus it is shown that not only are Vincent's organisms much more prevalent in mouths in cases in which the teeth are not cared for, but clinically infectious gingivitis is also much more prevalent, and corresponds practically with the bacteriologic findings. "Trench mouth" may be described as an infectious disease of the mucous membranes of the mouth due to a spirochete and fusiform bacillus (Vincent's organisms), causing severe inflammation which may progress to ulceration, accompanied by constitutional disturbances, such as fever, gastric disorder, loss of weight, and marked depression.

58. **Streptococci Recovered from Sick and Wounded Soldiers.**—A series of cases examined by Malone and Rhea showed that in direct injuries of the knee joint and indirect injuries with fracture of the femur or tibia, streptococci are usually found before the fifth day. In secondary infections where there has been no fracture into the joint, streptococci are recovered from the knee-joint fluid from the eighth to the twentieth day. In thoracic injuries with infected hemothorax these organisms are found between the seventh and fourteenth day after injury. Nonhemolytic streptococci are an uncommon cause of the surgical complications of wounds, except in cases of hemothorax, in cases in which they are usually of the types found normally in the respiratory tract. *Streptococcus pyogenes* is the type most commonly found in infected wounds. It is also the most pathogenic. The evidence to support the latter view is as follows: Of eight cases of infection in the knee joint, five developed secondary abscesses in the thigh or calf. *Streptococcus pyogenes* was found in the knee fluid and abscess in each of these cases. Of three cases of infection in the knee joint which required amputation, two contained pyogenes. Four cases of infected hemothorax ended fatally; three of these were due to *Streptococcus pyogenes.* This organism was recovered from the three cases of infected open wounds of the soft tissues, which were complicated by an infected hematoma or abscess. There was only one serious case of infection in the knee joint that was not caused by *Streptococcus pyogenes.* There was only one mild case of an infected knee joint in which pyogenes was the causative agent, and this case had the advantage of very early surgical treatment. So far as streptococci are concerned in the surgical complications of wounds of war, the type which is most common, and leads to the most serious results, is the same as is met with in civil surgery.

Canadian Medical Association Journal, Toronto

March, 1918, **8**, No. 3

61 Danger of External Use of Wood Alcohol. R. E. McKechnie, Vancouver.—p. 193.
62 Static Labyrinth and Ear Tests for Aviators. R. H. Craig.—p. 199.
63 Tuberculosis: One Hundred and Thirty-One Cases Treated by Artificial Pneumothorax. W. B. Kendall and C. C. Alexander, Gravenhurst, Ont.—p. 210.
64 *After-History of War Nephritis. War Nephritics Invalided to England. A. R. Robertson and others.—p. 218.
65 Duct Papilloma and Duct Carcinoma of Breast. O. R. Mabee, Toronto.—p. 225.
66 Rupture of Intestines by Blows on Abdomen. J. S. Wright, Edmonton.—p. 228.
67 Traumatic Rupture of Jejunum. L. B. Robertson.—p. 235.

64. **After-History of War Nephritis.**—Fifty patients were examined by the authors. Almost all cases show after a period of three months a trace of albumin, a few granular and hyaline casts, red blood cells, and pus. The chlorids and urea are about normal. Nocturnal micturition is present in nearly 40 per cent. of the cases, and there is probably a slightly greater amount passed during the night, between 8 p. m. and 8 a. m., than during the day. Many still complain of dyspnea, slight headache, pains across the lower part of the back, and a few develop slight transient return of edema. They are usually very well nourished, and not anemic; in fact there was usually a striking absence of the pale countenance so common in the ordinary nephritis of civil life. The blood pressure is usually normal, and there is no enlargement of the heart. Structural retinal changes are rare, having been seen in only one of the authors' series. A striking feature has been the fact that in over half the cases there has been at the onset acute catarrh of some part of the respiratory passage, most frequently a bronchitis, which was usually regarded as simply a "cold."

Colorado Medicine, Denver

March, 1918, **15**, No. 3

68 Causes of Iritis and Allied Inflammations. E. Jackson, Denver.—p. 63.
69 Carrel-Dakin Solution and Its Application. R. W. Corwin, Pueblo.—p. 69.
70 State-Wide Program in Venereal Disease. C. G. Hickey, Denver.—p. 72.
71 Making Surgery Safe for Democracy. C. S. Elder, Denver.—p. 74.
72 Lymphocytes and Their Relation to Resistance in Tuberculosis. E. D. Downing and J. L. Allison, Woodman.—p. 77.

Indiana State Medical Association Journal, Fort Wayne

March, 1918, **11**, No. 3

73 Appendicitis. G. Link, Indianapolis.—p. 93.
74 Tuberculosis of Cecum. J. W. Sluss, Indianapolis.—p. 99.
75 Surgical Treatment of Uterine Displacements. B. F. Kuhn, Elkhart.—p. 103.
76 Infections of Urinary Tract in Infants and Younger Children Due to Bacillus Coli Communis. C. A. Sellers, Hartford City.—p. 108.
77 Ocular Tuberculosis. L. D. Brose, Evansville.—p. 113.

Journal of Laboratory and Clinical Medicine, St. Louis

March, 1918, **3**, No. 6

78 Sugar Metabolism and Diabetes. H. McGuigan, Chicago.—p. 319.
79 *War Deafness and Its Prevention; Report of Further Tests on Preventives. S. R. Guild, Ann Arbor, Mich.—p. 338.
80 Physiology and Pharmacology of Chelonian Lungs. D. E. Jackson and M. D. Pelz, St. Louis.—p. 344.
81 *Bacteriologic Findings in Ozena. H. C. Ward and D. C. Beaver, Detroit.—p. 348.
82 Case of Symmetrical Peripheral Gangrene. C. E. Kiely, Cincinnati.—p. 352.
83 Studies on Diphtheria Toxin. L. Davis, Detroit.—p. 358.
84 Colloid Chemistry of Fehling's Sugar Test. M. H. Fischer and M. O. Hooker, Cincinnati.—p. 368.
85 Colloid Chemical Mimicry of Certain Enzymatic Reactions. M. H. Fischer and M. O. Hooker, Cincinnati.—p. 373.
86 Mastic Test for Diagnosis of Cerebrospinal Syphilis. F. Langdon, Cincinnati.—p. 376.
87 Improved Method for Anesthetizing Animals. J. A. Higgins, St. Louis.—p. 378.

79. **War Deafness and Its Prevention.**—The tests reported by Guild were made by means of the tambour method. The first thing noticed in studying the results is the division of the preventives into two distinct groups on the basis of the efficiency in stopping the force of the detonation waves. The ones that permitted the detonations to cause large movements of the tambour are the same ones that permitted the greatest injuries to the middle ears of animals. To these latter is added here the Elliott "Swimmer," which was not tested on animals. It is better than the Elliott protector, but would certainly permit positive damage to the ears under conditions similar to those used with the animals. On the other hand, the Scientific Ear Drum Protector "Tommy," which the middle ear conditions indicated as the best of the devices tested, has continued to be the device of choice. The Mallock-Armstrong Ear Defender is not quite so effective with these tests, but continues to be in the same group. The glycerin and petrolatum soaked cotton plugs have given better results here than in the animal tests; they are the only preventives that have not remained in the same relative positions in the order of efficiency as tested by the two methods. The Wilson-Michelson device is relatively and absolutely more effective with the heavier waves.

81. **Bacteriology of Ozena.**—A summary of the authors' study of 100 cases shows that the group of organisms known as the *B. mucosus-capsulatus* (Friedländer's bacillus, Abel's bacillus) is preponderant and may be pathognomonic in cases

of chronic rhinitis. This group is also independent of the action of putrefactive bacteria. In cases in which the symptom of malodor exists, a different class of bacilli known as the Perez group is most abundant and all cases show either one or both of the Perez and proteus groups present as causative factors of this condition. Cases of chronic catarrh may harbor pathogenic organisms of other species such as the diphtheria bacilli and contribute to the distribution of similar infections.

Laryngoscope, St. Louis

March, 1918, **28**, No. 3

88 Treatment of Malignant Disease of Larynx and Upper Respiratory Tract. J. C. Beck, Chicago.—p. 131.
89 Stuttering and Stammering (Lisping). M. K. Scripture, New York.—p. 156.
90 Two Cases of Syphilis of Epiglottis and One of Tuberculous Granuloma, Illustrating Difficulty of Diagnosis in Throat Lesions. H. Smith, New York.—p. 175.
91 Cervical Gangrene Complicating Ludwig's Angina. I. W. Voorhees, New York.—p. 177.
92 Two Cases of Nasopharyngeal Polypus Originating in Maxillary Sinus. H. L. Baum, Denver.—p. 180.
93 Nasal and Aural Polypi. Their Permanent Cure. C. Gluck, New York.—p. 186.
94 Primary Epithelioma of Pharynx and Left Tonsil. C. H. Weintz, Cincinnati.—p. 190.
95 Cause of Nonsuccess in Septal Operations. L. C. Vattier, Philadelphia.—p. 193.

Maine Medical Association Journal, Portland

March, 1918, **8**, No. 8

96 Case of Dr. Coolidge, of Waterville, Maine, 1847-1849. J. A. Spalding, Portland.—p. 217.

Medical Record, New York

March 23, 1918, **93**, No. 12

97 Prevention of Dysentery in Army Camps. C. C. McCulloch, Washton, D. C.—p. 487.
98 Case of Patent Urachus, with Abscess, Complicating Hypertrophied Prostate. W. T. Gibb, New York.—p. 491.
99 Training Myocardium. H. Schoonmaker, Clifton Springs.—p. 492.
100 Study of Genital and Progenital Papillomata and Excrescences. N. E. Aronstam, Detroit.—p. 495.
101 Some Important Points in Treatment of Gonorrhea and Some of Its Complications. M. Zigler, New York.—p. 498.
102 Mesenteric Thrombosis with Eighty-Eight Inches of Intestine Resected. E. Bonnot, St. Louis.—p. 502.
103 Psychopathic Hospital Ideal. L. G. Lowrey, Boston.—p. 503.

New Jersey Medical Society Journal, Orange

March, 1918, **15**, No. 3

104 Recent Advances in Neurologic Surgery; Especially in Diagnosis and Treatment in Brain Injuries. W. Sharpe, New York.—p. 73.
105 Nephritis in Infancy. T. W. Harvey, Jr., Orange.—p. 81.
106 Civil Surgeon and National Army. W. P. Eagleton, Camp Dix.—p. 85.

New York Medical Journal

March 23, 1918, **107**, No. 12

107 Nauheim Method. N. P. Norman, Watkins.—p. 529.
108 Sympathy, Affection, Love and Patients. I. Bram, Philadelphia.—p. 535.
109 Static Labyrinth. G. W. Stimson, Pittsburgh.—p. 539.
110 Thermotherapy in Gonorrhea. B. P. Thom, New York.—p. 543.
111 Treatment for Inebriety with Quartz Ultraviolet Light. D. McCaskey, New York.—p. 545.
112 Case of Lymphosarcoma; Report of Case. J. A. Miller, New York.—p. 547.
113 Dead Teeth. J. Novitzky, San Francisco.—p. 548.
114 Treatment of War Wounds of Joints in Advanced Medical Units. H. M. W. Gray, Aberdeen, Scotland.—p. 551.
115 Reclaiming Maimed in War. R. T. McKenzie.—p. 555.

Philippine Journal of Science, Manila

January, 1918, **13**, Sec. B, No. 1

116 Experiments on Malayan Anopheles with Special Reference to Transmission of Malaria. M. A. Barber, Manila.—p. 1.
117 *Does Irritant Action of Emetin Hydrochlorid Extend to Kidney? D. de la Paz and R. Montenegro, Manila.—p. 49.

117. Effect of Emetin Hydrochlorid on Kidney.—Experiments were made on dogs to determine the irritant effect of emetin hydrochlorid on the kidneys and other remote organs. The results show that emetin hydrochlorid gave rise to congestion and slight parenchymatous degeneration of the kidneys. While in one dog the drug produced hemorrhages at the sites of injection and between the layers of the renal capsule, and at the site of injection in another dog, in no case did its irritant action extend to the parenchyma of the kidneys, although it was administered in a quantity that, when injected daily, eventually caused the death of the animals.

Southern Medical Journal, Birmingham, Ala.

March, 1918, **11**, No. 3

118 Rôle of Carbohydrates in Infant Feeding. O. H. Wilson, Nashville, Tenn.—p. 177.
119 Present Attitude Toward Protein and Fat. O. W. Hill, Knoxville, Tenn.—p. 182.
120 *Classification and Treatment of Acute Diarrheal Diseases in Infancy. J. L. Morse, Boston.—p. 187.
121 Eczema in Infancy. F. P. Gengenbach, Denver.—p. 196.
122 Practical Value of Routine Examination of Blood, Spinal Fluid and Urine in Pediatric Practice. W. A. Mulherin, Augusta, Ga.—p. 202.
123 *Malaria in Infants. M. Smith, Little Rock, Ark.—p. 213.
124 Literature on Acidosis. J. R. Snyder and S. H. Welch, Birmingham.—p. 217.
125 Rheumatic Fever in Childhood. J. D. Love, Jacksonville, Fla.—p. 224.
126 Diagnosis and Treatment of Contagious Diseases. P. F. Barbour, Louisville, Ky.—p. 228.
127 Cerebral Hemorrhage in Hemophiliac—Milk Idiosyncrasy—Pyloric Stenosis. W. W. Harper, Selma.—p. 232.
128 Recent Outbreak of Poliomyelitis in Virginia. W. A. Brumfield, Richmond, Va.—p. 235.
129 Organization of Hospital for Treatment of Fractures. J. B. Walker and C. C. Cody, Jr., Washington, D. C.—p. 242.
130 *Improved Technic for Repair of Inguinal Hernia. M. J. Payne, Staunton, Va.—p. 243.
131 Piece of Steel in Brain Eighteen Years. S. H. McLean, Jackson, Miss.—p. 245.
132 Rôle of Abnormal Teeth in Production of Symptoms Referable to Ears, Nose and Throat. W. G. Harrison, Birmingham.—p. 246.
133 Treatment of Pneumococcus Ulcer of Cornea with Thermophore (Method of Dr. W. E. Shahan). J. Green, Jr., St. Louis.—p. 251.

120 and 123. Abstracted in The Journal, Dec. 29, 1917, p. 2208.

130. Technic for Repair of Inguinal Hernia.—In the modification of the Bassini operation proposed by Payne the cord is laid on top of the line of sutures in the deep layer of Poupart's ligament, and the inferior aponeurotic flap is then united to the muscular flap of the internal, oblique and transversalis muscles, to the external margin of the rectus and conjoined tendon (preferably by interrupted sutures), observing special care in placing the suture to make some tension on the inferior aponeurotic flap, in order that a relaxation of the tension on the deep suture line may be obtained. The superior aponeurotic flap is now united to the anterior surface of the inferior aponeurotic flap, giving a wide area of approximation. The fascia, fat and skin are united. It is believed that the improved technic in principle and effect accomplishes: A relaxation of tension on the line of sutures, apposing the muscular structures to Poupart's ligament; it allows a wider and easier approximation of tissue, implants an additional layer of tissue in front of the deep ring; furnishes a more convenient source of obtaining fascial support than flaps taken from the rectus sheath. The relaxation of tension on the structures is more easily and more certainly accomplished. It lessens pressure on the spermatic cord, a frequent cause of discomfort after operations for hernia. The relaxation of the tension on the deep suture line allows the regeneration of tissue to be more certain and, therefore, the union between the parts is more capable of resisting the effects of immediate and remote strain. The special feature of the modification suggested is a reinforcement of the wound, by uniting the lower aponeurotic flap to the deep or muscular structures. In addition to this special feature, the various structures brought into apposition are more readily overlapped, at the same time relaxation of tension on the most important suture line is easily accomplished.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

March, 1918, **26**, No. 3

134 Case of Gas Bacillus Infection with Recovery without Loss of Limb. H. Reed, Oklahoma City.—p. 49.
135 Bone Graft Surgery. C. Geiger, St. Joseph, Mo.—p. 56.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

February, 1918, **22**, No. 9

1 Extraction of Foreign Body from Brain. H. H. Rayner and A. E. Barclay.—p. 265.
2 Interrelation between Roentgenography and Surgery of Gunshot Wounds of Head. H. E. Gamlen and S. Smith.—p. 270.
3 Some Modern Developments in Roentgenology. L. E. Ellis.—p. 281. To be continued.

British Medical Journal, London

March 2, 1918, **1**, No. 2983

4 *Nature and Symptoms of Cardiac Infection in Childhood. F. J. Poynton.—p. 249.
5 Use of Divided Mattress and Pelvic Elevator. W. Macewen.—p. 252.
6 Hemagglutinin Reaction. C. J. Bond.—p. 253.
7 General Analgesia by Oral Administration. J. T. Gwathmey and H. T. Karsner.—p. 254.
8 *Effect of Deep Held Inspiration on Murmur of Slight Aortic Regurgitation in Young Subjects. W. Gordon.—p. 257.
9 Conservative Surgery of Hand as Illustrated by Case of Tendon Grafting. A. W. M. Robson.—p. 257.
10 Acute Intestinal Obstruction Due to Jackson's Membrane. F. C. Pybus.—p. 258.
11 Reduction en Masse of Strangulated Direct Inguinal Hernia. H. H. Rayner.—p. 258.

4. **Cardiac Infection in Childhood.**—Poynton says that in England there is no more serious affection of the heart than mitral stenosis. It is frequent in occurrence, incurable and a common cause of death under 45 years. He emphasizes the value of studying not only the cardiac signs but all the events that may coincide with a first attack of rheumatism in childhood. In order to prevent cardiac infection every detail concerning the lesions in other organs becomes important. Severe valvular disease may result from repeated attacks of rheumatism, but the deadly menace to the heart lies in the grave toxemic forms which from the first irreparably damage the neuromuscular tissues. In such cases the element of virulence is of more importance than the physical signs of cardiac disease for arriving at the immediate prognosis. An acute tonsillitis in a child should always call for careful examination of the heart. Recurrent sore throats in childhood are not only in themselves painful and disabling, but are a menace to the heart. Arthritis in childhood is very frequent in rheumatism, and on this account a very valuable danger signal. Although arthritis at this age is not usually severe, the value of it as a symptom is very great, particularly if it is realized that the pain may be considerable owing to implication of surrounding tendon sheaths, with no detectable changes in the joint affected. The rule has been long established that obscure pain in the joints and muscles in childhood should call for a careful examination of the heart. Chorea and the allied nervous symptoms deserve the closest attention. The various rashes and cutaneous manifestations of rheumatism are of particular interest in that they give a hint as to the nature of the rheumatic poisons of which we have no accurate knowledge. Epistaxis is also frequent in the rheumatic child.

The occurrence of abdominal symptoms in the rheumatic is an obscure subject, but of considerable interest in heart disease. Occasionally extreme pain and distention may be complained of in the line of the colon, producing great distress and embarrassing the damaged heart, and troublesome colitis may occur. Apart, however, from these, one repeatedly meets in rheumatic children what are called "bilious attacks." The appetite fails, the sclerotics become icteric, and the tongue coated; the motions are pale and there may be vomiting, fever and severe headache. Such attacks may usher in an exacerbation of rheumatism. Poynton draws attention particularly to the occurrence of this triad of symptoms in the rheumatic: Instability of the nervous system, abdominal disturbances, and faulty action of the heart. General wasting also is a symptom needing close attention. This symptom in a child with severe organic heart disease is of great significance, for it may mark the beginning of the last stage of the illness, and indicates failure of the circulation to maintain nutrition even when the child is carefully guarded. The converse to this is also of value; it is a sign of good augury when a child with rheumatic heart disease begins to gain in weight although the physical signs in the heart may convey no such favorable impression. Anemia in rheumatism affords valuable evidence of the virulence of an attack.

8. **Effect of Deep Inspiration on Murmur of Aortic Regurgitation.**—Gordon draws attention to what he believes to be an undescribed clinical phenomenon, namely, the marked diminution or complete disappearance of the diastolic murmur of aortic regurgitation (in young subjects with only slight regurgitation) when a deep breath is taken and held.

Lancet, London

March 9, 1918, **1**, No. 4932

12 Serum Sickness. E. W. Goodall.—p. 361.
13 Some Mechanisms at Work in Evolution of Hysteria. D. E. Core.—p. 365.
14 *Effects of Flavine in Wound Treatment. W. Pearson.—p. 370.
15 Disordered Action of Heart. R. H. Trotter.—p. 371.
16 Case of Partial Gunshot Division of Musculospiral Nerve with Secondary Suture. C. A. Morton.—p. 373.
17 Emotive Response to Ordinary Stimulation, Real and Imaginary. A. D. Waller.—p. 380.

14. **Effects of Flavine in Wound Treatment.**—A 1:1,000 solution of acriflavine in sterilized normal saline was used in all cases by Pearson. It was employed as a lotion for irrigating the wounds at each change of dressings, and also in gauze packs placed in the wounds and in the outer gauze dressings. The cases selected for treatment with flavine were: (1) those in which infection and sepsis were active and not under control when treatment was instituted; (2) those in which infection and sepsis had been controlled and repair had already begun before flavine was employed. In cases in which infection and sepsis were active and uncontrolled the use of flavine following suitable operative measures had no beneficial effect on the subsequent progress of the case in so far as control of sepsis is concerned. Any slight differences observed were unfavorable. In cases in which sepsis had already been controlled and repair had begun flavine acted injuriously, chiefly by producing an unhealthy granulating surface. While these conclusions do not prove that flavine may not possess powerful germicidal properties in certain experimental conditions, Pearson believes they show that its clinical use is not attended with good results. Since completing his observations he had entirely abandoned the use of flavine in his work.

Bulletin de l'Académie de Médecine, Paris

Feb. 12, 1918, **79**, No. 6

18 *Foreign Bodies in the Eye from War Wounds. F. de Lapersonne.—p. 134.
19 *Nature of Rabies Virus. P. Remlinger.—p. 137.
20 Simplified Technic for Transfusion of Blood. P. Ameuille.—p. 140.
21 *Tunneling the Prostate. (Le forage de la prostate.) G. Luys.—p. 141.

18. **Foreign Bodies in the Eye.**—Summarized in Paris Letter, p. 944.

19. **Nature of Rabies Virus.**—Remlinger calls attention to the diffusibility of rabies virus as a special property which distinguishes it from protozoa and bacteria, and brings it closer to chemicals. For instance, if tissues containing the bacilli of anthrax, tuberculosis or glanders are immersed in glycerin, they do not diffuse through the glycerin, and the latter can be injected into susceptible animals without inducing infection. But if any tissue from an animal with rabies is placed in glycerin, the glycerin and even scraps of normal tissue that have been immersed in it, likewise, promptly induce rabies in animals inoculated with the glycerin or the scraps of tissue in it. This extreme diffusibility is like that of chemical substances.

The rabies virus differs however from chemical substances in that it passes through the more porous filters but not the others. With a less porous filter, the virus may induce rabies

in the animal inoculated, but it is impossible to reproduce the disease from this animal in others. With a still finer filter, the virus induces merely cachexia without actual rabies. Chemical substances in solution, on the other hand, pass through the filters regardless of the porosity. The rabies virus therefore, in regard to the filters, behaves differently from both bacteria and chemicals.

The rabies virus behaves paradoxically also in centrifugation. This has no effect on a chemical solution, but it does have a very slight effect on rabies virus; the virus very slowly leaves the upper layers of the fluid. In short, the rabies virus, filterable and diffusible, seems to offer a connecting link between the visible microbes, which represent the lower limit of the vegetable kingdom, and the diastases, that is, the colloidal substances which may be regarded as at the highest limit of the inorganic bodies. It is thus a transitional form between the visible microbes and the colloids.

21. **Drilling the Prostate.**—Luys describes the simple technic with which, under direct visual inspection, he destroys in the interior of the hypertrophied prostate the obstacles which prevent the free course of the urine. There may be a kind of dike between the bladder and the urethra, or the two enlarged lobes may be stuck together. It is better to bore a passage in several sittings, instead of trying to accomplish it all at once. From three to six sittings are usually sufficient, at intervals of a week. If the actual cautery starts bleeding, electrocoagulation will arrest it at once.

Bulletins de la Société Médicale des Hôpitaux, Paris

Dec. 21, 1917, **41**, No. 36

22 *Spirochetosis without Jaundice. Favre and R. Mathieu.—p. 1273.
23 Simple Splenomegaly Early in Malaria. R. Porak.—p. 1276.
24 Hypersusceptibility to Tuberculin in Nodular Erythema. A. Netter.—p. 1280.
25 Hemianesthesia from War Wounds in Parietal Region of the Brain. G. Guillain.—p. 1281.
26 *Respiratory Disturbances in Pneumogastric Paralysis. M. Vernet. —p. 1285.
27 *Deranged Functioning of the Sympathetic Nervous System. F. Ramond, P. A. Carrié and A. Petit.—p. 1290.
28 *The Bacterial Flora of War Wounds. Plisson, L. Ramond and C. Vergelot.—p. 1295; (id.) 1302.

22. **Spirochetosis Without Jaundice.**—Favre and Mathieu relate that in seven men recently in their ambulance spirochetes were found constantly in their urine, up to six weeks in one and for three months in two. All looked thin and pale and complained of vague pains, and were incapable of work; over the cheek bones the skin was red but elsewhere was brownish. One man had a hydrarthrosis resistant to the salicylates; another succumbed to severe nephritis. The congestion of the skin was so marked in one case that scarlet fever was diagnosed at first. The spirocheturia was constant at first but became intermittent later.

26. **Paralysis of the Pneumogastric Nerve.**—Vernet describes how certain war wounds have entailed paralysis of the pneumogastric system, manifested by disturbances in sensibility, in salivation, and in the breathing. A pseudo-asthma follows the paralysis of the sensory fibers of the pneumogastric in the lungs, while dyspnea on exertion results from irritation of these fibers. Other manifestations are described which throw new light on the part played by the pneumogastric in the pathology of the lungs in general.

27. **The Sympathetic Syndrome.**—Ramond has had a certain number of men in his service presenting a set of symptoms which classed them in a group as suffering from the results of derangement in the functioning of the sympathetic nervous system. The symptoms are essentially vasomotor, cardiac and secretory, with sometimes respiratory, dyspeptic and mental disturbance and tremor. They occur in attacks and these may be restricted to one or more of the symptoms and to some special region. Some of the symptoms can be explained by exaggerated irritability of the nerve, others by a state of inhibition, one part of the nerve functioning to excess and another part inadequately functioning. The men thus affected had been classed as having some heart disease, on account of their tachycardia, or as alcoholics, on account of their tremor, their emotional instability, their puffy faces. Others as dyspeptics, because their disturbances manifested themselves after eating. But they are most likely to be classed as having exophthalmic goiter. An inherited taint is evident in many cases. An infection or alcohol is liable to bring on especially severe attacks. It is possible that some defective internal secretion may be the primal cause of this sympathetic syndrome.

28. **The Flora of War Wounds.**—Plisson, Ramond and Vergelot report the bacteriologic findings in 428 personal examinations of the wounds of 186 soldiers, and compare with their findings those of Carrel, Tissier, Wright and other workers in this new close collaboration between the surgeon and the bacteriologist. All agree that the cultures do not become positive until after the fourth or fifth hour, often not until after the tenth or even later. Positive smears were obtained only in 14 of 75 wounded examined, before any intervention, between the fourth and forty-eighth hours; anaerobic cultures were positive in 13 and aerobic in 32. All war wounds contain germs from the first, but they are few and lie close to the foreign bodies at first. The perfringens was the only anaerobe they succeeded in cultivating from the wounds with the simple technic used. It was alone in 8 per cent. of the cases. Association of aerobes and anaerobes was evident in 60 per cent. of the cases. They describe the various features observed in wounds with anaerobes and aerobes and with and without the streptococcus. The presence of anaerobes does not necessarily entail putrid transformation; there were only 6 cases of gangrene among the 75 men. The perfringens persisted apparently harmless until after the tenth day in 22 cases, and in 3 beyond the fifteenth, but such cases show the possibility of tardy gangrene. The primary suture proved a success, notwithstanding the presence of the streptococcus, in 24 cases, associated with anaerobes in 13; the presence of the colon bacillus in 9; the enterococcus in 8; diplococci in 5, and the proteus in 3.

28. **Practical Application of Bacteriologic Findings in Wounds.**—The bacteria found in wounds are not inevitably pathogenic, but the streptococcus almost invariably confers a special and malignant course on the wound. Associated with anaerobes, rapid gas gangrene is liable. Hence the task of the bacteriologist is mainly to determine whether the streptococcus is present or not. Smears are usually unreliable and the ordinary culture technics often fail to reveal the streptococcus. The writers' experience indicates that with ordinary bouillon, containing some albumin, the streptococcus can be shown up in six hours. They used four parts bouillon to one part *albumine à la soude de Sacquépée*. But even with this, the findings came too late to be of any assistance to the surgeon in determining whether it is safe to suture at once a recent wound. The surgeon is the sole judge of what is best to be done, and this is determined by the more or less complete clearing out of all devitalized tissue. But the bacteriologist demands the opening up of every suture when he finds that the streptococcus is present. With other germs the surgeon is free to maintain or open up the suture as the clinical course suggests.

The bacteriologic findings should also be the criterion for the proper moment when no longer recent wounds, under progressive sterilization, are ready to be sutured. Carrel's rule is to suture when two consecutive examinations, at one or two days' interval, show only one microbe to four or five microscopic fields. For deep wounds, he demands several examinations in the course of four or five days. The streptococcus, however, even in small numbers, formally contraindicates suturing. Relying on these rules they applied primary suture in 90 war wounds, in less than twenty-four hours, with complete success in 60 of the cases. In 22 cases the wound was reopened for clinical or bacteriologic reasons. In all but 10 in this group the streptococcus was present, associated with the perfringens in 7; in one case the staphyococcus was associated with anaerobes, and in 6 the perfringens accompanied various germs. In 5 of the cases a primary total suture and in 3 a partial suture separated when the threads were withdrawn the tenth day; the streptococcus was present in 3 in this group. The others had anaerobes

except in one case in which the staphylococcus alone seemed responsible. The laboratory findings conferred a confidence, even amounting to audacity, which was justified by the 66 per cent. of completely successful primary sutures.

Paris Médical

Feb. 9, 1918, **8**, No. 6

29 *Roentgenoscopic Outlining of Ventricles. H. Vaquez and E. Bordet.—p. 113.
30 High Blood Pressure with Nonvalvular Heart Disturbance. P. Merklen.—p. 116.
31 *Protracted Parameningococcus Septicemia. H. Aimé and H. Chéné.—p. 118.
32 Psoriasiform Dermatitis. H. Gougerot.—p. 121.
33 Extraction of Shell Scrap in Lumen of Axillary Artery. M. Patel. —p. 125.

29. **Detection of Hypertrophy of the Ventricle.**—Vaquez and Bordet recall that the left ventricle does not form much of the front aspect of the heart, its position being mostly deep in the mediastinum. In order to detect slight, incipient hypertrophy we must ascertain the depth to which it reaches backward, and they have worked out a roentgen technic which permits this. The depth is calculated by superposed triangles, like the formulas for locating a foreign body in the depths of the tissues. The tube is centered at the apex and the edge of its profile is marked on the glass. A footrule is then placed on the screen and the tube is moved toward the observer's left until the normal rays pass through a point 10 cm. distant from the first mark, and the new edge of the profile is marked on the screen. The number of millimeters between the two marks represents the depth to which the ventricle has developed backward. They have the subject stand, resting his chin on the screen. This immobilizes him enough. The whole procedure is simple and brief, while experience is confirming its reliability in the early diagnosis of hypertrophy of the ventricle. The index in normal conditions ranges from 7 to 14 mm. With various forms of heart disease they found the index 18, 20, 25 or 40 mm.

31. **Tardy Meningitis.**—Aimé and Chéné urge the importance of early lumbar puncture in dubious cases without waiting for actual meningitis to develop. This gave the clue and permitted effectual treatment in a case described which otherwise would not have been cleared up in time. The main symptoms were those of a septicemia dragging along for a month with intermittent attacks simulating those of malaria. Finally symptoms suggesting meningitis developed, and a few diplococci were found. Diplococcus septicemia is rare; only twelve cases have been published to date, they say, including Marie's three. Under serotherapy the man was discharged cured nearly four months after the first symptoms had attracted attention: fever, pains in the legs, headache and a transient papulous eruption. The attacks with chill, high fever, eruption and pains in the joint returned irregularly. Nine intraspinal injections of antiserum were made in the course of three weeks, and the antiserum was injected subcutaneously a few times.

Presse Médicale, Paris

Feb. 4, 1918, **26**, No. 7

34 *Transfusion of Citrated Blood. E. Hédon.—p. 57; E. Jeanbrau. —p. 58.
35 *Treatment of Ischemic Contracture. J. Luzoir.—p. 62.

34. **Transfusion of Citrated Blood.**—Hédon gives the history of this method of transfusion, awarding the priority to Agote of Buenos Aires, as Hustin's technic, published the year before, differs from simple citrating of the blood. Hustin injected blood diluted with a solution of sugar and citrate.

Jeanbrau gives numerous illustrations of his simplified technic for the purpose, which he is applying as a routine measure in severe posthemorrhagic anemia with or without shock, carbon monoxid poisoning, uncontrollable hemorrhage, hemophilia, pernicious anemia and certain cases of shock. His research has confirmed that the usual dose of citrate dissolved in blood has no hemolytic action. In Hédon's tests the citrated blood kept on ice for ninety-two hours up to eight days seemed to be fully as effectual in resuscitating exsanguinated animals. Jeanbrau adds that the citrate is not an aphysiologic or antiphysiologic substance; the mammalian organism produces a physiologically citrated fluid: milk. Experience has shown further that transfusion of citrated blood does not expose to secondary hemorrhages. In short, he concludes, the transfusion of citrated venous blood is as effectual as the direct vein-artery technic while the facility, rapidity and security of the method are peculiarly valuable for the otherwise moribund exsanguinated wounded.

35. **Treatment of Ischemic Contracture.**—Luzoir presents arguments and recently acquired data which sustain the view that mechanical and orthopedic rather than surgical measures are the best treatment for Volkmann's disease.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Feb. 2, 1918, **48**, No. 5

36 *Hill Climbing as Therapeutic Measure. (Ueber Terrainkuren.) A. Jaquet.—p. 129.

36. **Therapeutic Hill Climbing.**—Jaquet is enthusiastic over the results to be obtained with Oertel's system of graduated hill climbing exercises in treatment of disease of the cardiovascular system. When done with the necessary caution and under the constant supervision of an experienced physician, there is no need to fear injury of the heart, as the course can be stopped at the first sign of trouble. The success obtained with it in many cases was the most gratifying he has ever had in the treatment of disease of the circulatory apparatus. He explains how the bending of the legs in climbing has a special aspirating action on the blood in the veins of the legs, far beyond that with walking on a level, or with gymnastic exercises as the latter are done only for a few minutes at a time. The aspirating action is enhanced by the deeper breaths taken in climbing. Any tendency to dilatation of the ventricle must be scrupulously avoided. He begins by having the patient walk 100 meters on level ground, taking forty-five or fifty steps a minute, with deep inspiration or expiration at each step. If the pulse runs up considerably with this and does not quiet down completely within a few minutes, he gives up the attempt at mechanical treatment for the time at least, and devotes his energies to relieve and rest the heart. But if there is no abnormal reaction, no dyspnea, he continues with the exercises, gradually increasing the distance and the slope, but always under constant medical supervision until certain that the exercise is borne without harm, and that the patient can be trusted to follow directions alone. Constant control of the urine is important—a progressive decline in the total output and increase in the specific gravity should warn to greater caution. In conclusion he emphasizes the necessity for exact knowledge as to the grade of the slope, not trusting to the eye, and he gives a road map of his region showing by different colors the roads with 0.5 per cent. grade, 5 to 10 per cent., 10 to 20 per cent. and over.

Annali d'Igiene, Rome

January, 1918, **28**, No. 1

37 *Action of Cold on Microorganisms. A. Q. Ruata.—p. 1.
38 Biology of Lice. A. Ilvento.—p. 10.

37. **Action of Cold on Micro-Organisms.**—It is generally accepted that cold inhibits the proliferation of germs but does not destroy them. Ruata's experiences, however, have demonstrated that a long enough exposure to cold will destroy the cultures beyond possibility of recuperation. The temperature was dry cold and kept constantly between — 3 C. and — 12 C. Thirty cultures of colon bacilli and other germs were placed in the refrigerator and some were withdrawn on successive days and incubated. By the fourth day only from three to forty-nine colonies developed, instead of the thousands of the second day, and no colonies at all developed after the fourth day. Similar results were obtained even with four strains of bacilli and one streptococcus isolated from putrid meat. The conflicting results that have been obtained by others were probably due to the fact that the contact with the cold was not long enough to have its action penetrate through the entire mass. Even one germ still living in the center of the mass would start a culture. But systematic permeation of the entire mass by cold of these degrees will certainly progressively sterilize it in time.

Chirurgia degli Organi di Movimento, Bologna

December, 1917, **1**, No. 4-5-6

39 G. A. Borelli, 1608-1679. V. Putti.—p. 409.
40 *Vitalization of Artificial Limbs: Kineplasty. (Cinematizzazioni. Plastiche e protesi cinematiche.) V. Putti.—p. 419.
41 *Treatment of War Fractures. A. Serra.—p. 493.
42 Treatment of Grave War Wounds of Bones and Joints. F. Pancrazio, G. Querni and F. Miti.—p. 569.
43 *Partial Amputations of the Hand. F. Delitala.—p. 595.

40. **Vitalization of Artificial Limbs.**—Putti expatiates on the promising field opend up by Vanghetti with his idea of utilizing the muscles in the stump in such a way as to permit volitional control of the prosthesis. His latest article on this kineplasty was reviewed in The Journal, July 28, 1917, p. 321. Putti has been studying from this point of view 1,000 stumps and noticed that the functional value of a stump was by no means always proportional to the length of the stump. The vitality of the muscles, however, is strictly dependent on the state of the terminal segment of the stump. He was also impressed with the great power of recuperation of the muscles after long inactivity when the proper physical and surgical measures were applied. The power of volitional dissociated movements of different muscles persists long after amputation, and can be increased by training and exercise and especially by utilizing it for kinematization, that is, for vitalizing the artificial hand or foot. Thirteen cases are described with minute detail and seventy-nine illustrations, and the various types of artificial hands and legs constructed for kinematization are reproduced. He also describes the exercises devised to train the muscles to dissociated, effectual motor functioning. In one typical case the knee had been disarticulated and a month later the quadriceps had been tunneled, thus forming a flexor-extensor loop containing the patella. In twenty days the exercises were begun; by the thirtieth day a weight of 10 kg. could be suspended and moved for 3 cm. The tunnel is lined with a pedunculated flap of skin, sutured to make a tube. Plenty of sound skin is indispensable for lining the tunnel. The skin over the extensor region is usually stouter than elsewhere, and it and the muscles can be mobilized and stretched with strips of flannel, etc., stuck to the skin to which elastic traction can be applied.

It is quite a task to revivify the muscles of a stump and train the motor centers to a peripheral action and kinetic play which is fundamentally different from the normal, but experience has demonstrated that the resources of a muscle are infinite, both biologically and mechanically, and its motor centers are adaptable, while the innumerable resources of physiotherapy revivify and intensify the motor force of the stump. A number of tables are given of the findings in regard to the motor capacity of 200 amputation stumps compared to the length of the stump. They show that with the longer stumps the sacrifice of a few more centimeters of the bone does not modify the motor power. The man must be able to rotate the limb. No attempt is made at reunion of the stumps of the tendons. The men soon learn to do separately the movements for bending and stretching the muscles. One man rapidly learned to bend the motor loop sideways (radial), the impulse, he said, being the same as for abduction of the thumb.

41. **War Fracture of Long Bones.**—Serra gives an illustrated report of forty-one cases given treatment at the Rizzoli Institute at Bologna, and the various immobilizing devices used.

43. **Partial Amputation of the Hand.**—Delitala comments on the necessity for constructing the prothesis for each individual case, utilizing every scrap of possible motor functioning. He gives illustrations of numbers of such devices from those for a single finger to the whole hand, a total of fifty-two illustrations. The fifty crippled men included four with bilateral amputation. He emphasizes in particular the surprising leverage force left in the carpus, especially for vitalization of artificial fingers. It is possible to obtain with it functional results identical with those realized by Putti with the kineplastic loops described in abstract 40 above. Delitala and Putti both utilize a recording drum and kymograph to determine the amplitude and force of the movements, the rhythm of contraction, and the influence of exercise, training, etc.

Pediatria, Naples

February, 1918, **26**, No. 2

44 *Amino-Acids in Urine from Debilitated Infants. S. Cannata.—p. 65.
45 *The Functioning of the Mammary Gland. A. Borrino.—p. 71.
46 *Palpable Intercostal Lymphatics in Infants. S. De Stefano.—p. 88.

44. **Amino-Acids in Infants' Urine.**—Cannata tested the urine of four cachectic infants for amino-acids. They were constantly present in large amounts, showing the disturbance in the intermediate metabolism in cachexia from syphilis, tuberculosis or other cause. The liver may or may not be damaged.

45. **Functioning of the Mammary Gland.**—Borrino insists that breast nursing can be resumed even after a long lapse. She has accomplished this in three cases after an interval of twenty-five, twenty-seven and forty-five days. She also insists that the child can be fed amply from one breast if the other is damaged beyond recuperation, or at least the child may require only a little supplementary feeding. Five case reports confirm her assertions. Gallstone trouble does not contraindicate breast feeding; she has had one patient nurse two children successfully although gallstone attacks returned at each of the two pregnancies. There had been no symptoms from the cholelithiasis in the interim. By letting the child suckle the breast every hour, but not for more than ten minutes, the glands resumed the secretion of milk, after twenty-five and twenty-seven days interim, in from three to six days up to eight days. The infants were about a month old at the time. In the third case the infant had never nursed well and there had been abscesses in the areolae. The child was trained anew to suck after forty-five days' suspension. It was given the breast of a wetnurse for two feedings after sucking the mother's breast for ten minutes. As the mother's milk increased in amount, the wetnurse feeding was changed for diluted cow's milk, but this was always given with the spoon, reserving the sucking efforts for the mother's breasts. The three children had been running down from severe digestive disturbances but all promptly recuperated when given their natural food.

46. **Palpable Lymphatics in Infants.**—De Stefano calls the discovery of enlarged peripheral glands in infants, Hochsinger's sign of tuberculosis. He tabulates the findings, with other clinical details, in fifty-six infants. In 55 per cent. of the total these palpable glands accompanied tuberculosis of the bronchial glands. In the other 45 per cent., palpable glands in the axilla were associated with diseases other than tuberculosis, inherited syphilis, rachitis or grave malnutrition.

Policlinico, Rome

Feb. 10, 1918, **25**, No. 6

47 *Surgical Treatment of Causalgia. O. Tenani.—p. 125.
48 *Epidemic Dropsy. F. Leporini.—p. 133.
49 Ludwig's Angina. G. Blasi.—p. 134.

February, 1918, **25**, Medical Section No. 2

50 *Traumatic Pseudotabes. A. Mendicini.—p. 33.
51 *Traumatic-Emotional Dystrophy. G. Pighini.—p. 42.
52 *Tumors of the Temporal Lobe. P. Ciuffini.—p. 49. Commenced in No. 1, p. 1.

47. **Causalgia.**—Tenani argues that the prompt cure of causalgia by resecting sympathetic fibers testifies to the fact that the sympathetic nerve is incriminated in the pathogenesis. There may be some lesion or lesions in or involving the nerve trunk or the fibers encircling the trunk vessel or in the vessel itself. Resection of the sheath around the vessel generally removes the cause, and the causalgia disappears. He does not restrict his intervention to resection of the sheath of the artery but resects the sheath of the vein as well. This simplifies and facilitates the resection while it renders the benefit more certain and regular. The experience to date all speaks in favor of this method of treatment but the cases are still too few and too recent for a final judgment. They have already established beyond a doubt the

share of the sympathetic in the causation of the causalgia. The appearance of causalgic phenomena in certain cases where there is only partial interruption of a nerve, and the subsidence of the causalgic phenomena after removal of the cicatricial tissue and coaptation of the stump show that the sympathetic nerve is not the only factor involved. On the other hand, the absence of any improvement after the operation in certain cases of this kind renders the choice difficult between neurolysis and sympathectomy. Another fact that adds to the uncertainty is that many sympathetic fibers accompany the nerve trunks, independently of the blood vessels, and we are dubious whether to act on the nerve or on the sheath of the artery.

48. **Epidemic Dropsy.**—Leporini reports some cases in northern Africa of a low febrile state with vomiting and diarrhea, and then suddenly there develop anasarca, a peculiar eruption, and acute anemia and intestinal disturbances. It is the first time, he thinks, that this epidemic dropsy has been known in northern Africa. The necropsy findings in the liver and kidneys resemble those of amyloid degeneration. He is convinced of the infectious origin but accepts also a predisposition from some alimentary deficiency. This assumption suggests that epidemic dropsy might properly be called "infectious beriberi."

50. **Traumatic Pseudotabes.**—Mendicini describes a case of injury of the cauda equina from a scrap of shell in which the symptoms were those of pronounced tabes, extinction of the reflexes, ataxia when walking but not when seated or reclining, lancinating pains, and deranged sphincter functioning. The traumatism was in the lower lumbar vertebrae. It had induced, at first, total paraplegia. In connection with this case he reports one of pseudotabes caused by an extrameningeal traumatic polyradiculitis. In this the paraplegic phenomena were fleeting, and the functioning of the sphincters was intact. The cough and sneezing sign was pronounced in the first case but not in this one. In a third case described the diagnosis of lumbosacral hematomyelia seemed evident. The course of such cases clears up the diagnosis, as all agree that traumatic lesions of the cauda equina tend to improve, even in the cases which at first seem very grave. Improvement is especially likely when the symptoms take the form of pseudotabes, the expression of an incomplete lesion of the roots.

51. **Traumatic Emotional Dystrophy.**—Pighini's conclusions from study of the men with dystrophies of different kinds after minor war wounds have convinced him that when peace is once declared these affections will disappear. It is the war environment, the focusing of the attention on the wound which the man does not want to have healed, as this would mean his return to the firing line. All his thoughts and efforts are focused on perpetuating the wound and its results. If the nervous constitution is below par, to begin with, there may become installed a reflex dystrophy in time. In all such cases tested he found an intense reaction to atropin, with scarcely any reaction to pilocarpin, epinephrin or ingestion of glucose. There is ground for assuming that the thyroid secretion presides over the functioning and the tonification of both sections of the vegetative nervous system. The vagus, with its ramifications in the throat, stimulates the formation of the thyroid colloid on the one hand, while on the other the thyroid secretion stimulates and tonifies the vagus nervous system. Thyroid treatment supplies the stimulating hormon for both systems, but the sympathetic usually feels its action predominantly. When there is a tendency to autonomous miopragia and abnormal functioning on the part of the sympathetic, then thyroid treatment has a different action. It slows the heart impulse and the pulse, raises the blood pressure, and the oculocardiac reflex tends to become normal. In these cases of trophic changes in skin, muscle and bone, with traumatic psychoneuroses, he noted among the other somatic changes that the coagulation time of the blood was abnormally long. It is possible that further research may disclose a deficit in lime in the blood, or pathologic parathyroids. If these trophic changes were merely reflex phenomena, instead of requiring a predisposition and special psychic circumstances, they would be of common instead of exceptional occurrence. He regards as the most convincing of his arguments in favor of this view, that these dystrophies have never been encountered among prisoners of war in the Italian camps. The war wounds in them heal as in peace, as the men know their days of fighting are over. In the soldiers, dreading a return to active duty as soon as the wound is healed, the pulse is unstable, hypotension and tachycardia are frequent, as also dermographism, intensification of the muscle response to mechanical stimulation, and trophic manifestations, such as edema of the hand after a slight wound of one finger, patches of leukoderma, or symptoms suggestive of excessive or deficient thyroid functioning. In one man one leg developed myxedematous changes, which improved under thyroid treatment.

52. **Tumors in Temporal Lobe.**—Two operative cases are described in detail. They show that the temporal lobe can be divided into four zones, each of which has its own special symptoms. Jacksonian epilepsy originating on the paretic side of the body was noticed in one case. In one of the cases the spontaneous pressure pain was always localized mainly in the frontal lobe. The hearing was reduced early, as also the sense of smell. Word amnesia was pronounced in one case, also a tendency to sensory disturbances and aphasia. The changes in character were early and pronounced. One patient was a boy of 14 and great improvement followed the operation last June. The tumor is said to have been a spindle-cell sarcoma as large as a lemon. There had never been any signs of jacksonian spasms during the six months since the first symptoms had been observed.

Riforma Medica, Naples

Feb. 2, 1918, **34**, No. 5

53 *The Typhoid Mortality. P. Guizzetti.—p. 82.
54 Banti's Disease as a Morbid Entity. A. Ferrannini.—p. 89.

53. **Typhoid Mortality.**—Guizzetti analyzes the typhoid data from 1860 to date at the Institute for Pathologic Anatomy at Parma. He made the necropsy himself in 160 of the total 378 cases. In only three cases were the intestines found intact. In one child of 6, an ascaris seemed to be responsible for the fatal perforation. The cases with perforation seemed to be more numerous in certain epidemics than in others. Lesions in the lungs were manifest in over 34 per cent., mostly hypostatic pneumonia, but pleuritis was observed in only five cases. In each the typhoid bacilli were responsible for the infarcts in the pleura. Two of the cadavers showed a general hemorrhagic diathesis but in the entire 378 cases no indications were found of typhoid lesions in bones or the male genital organs, and none have been observed among the 892 soldiers with typhoid in his field hospital service. Diphtheria, erysipelas and bacillary dysentery sometimes complicated the typhoid, but in all his experience he has never met with a complicating eruptive disease, measles, scarlet fever or variola.

Brazil-Medico, Rio de Janeiro

Dec. 22, 1917, **31**, No. 51

55 *Vagotony with Gastric Ulcer. O. Ayres.—p. 433. Commenced in No. 50, p. 425.

55. **Delirium of the Vegetative Nervous System.**—Ayres says that nothing less than the term "delirium" will fit the case described. The young woman never at any time presented any of the usual manifestations or stigmata of hysteria. The family was healthy, but the young woman suffered from dysmenorrhea and for the last two years had presented symptoms suggesting gastric ulcer. Then came sudden choleriform diarrhea and later intense pains from the gastric ulcer but localized in the abdomen. The pains were so intense that they threatened heart failure and the patient had to be kept under the influence of opium or chloral during the twenty-four hours they lasted. Then came convulsive spasms of the stomach, esophagus, throat and diaphragm. These spasms persisted even under the influence of 4 gm. of chloral and during syncopes. Application of galvanic electricity intensified the spasm, and no treatment seemed to have any

influence. The convulsions were not merely choreiform movements—the pulse disappeared completely, and the entire thorax was brutally shaken, leaving the young woman bathed in sweat and fainting. Even under 4 gm. of chloral the convulsions returned every five or ten minutes at longest. They kept up for nearly two days; a fatal termination seemed inevitable, but the patient's strength was maintained with nutrient enemas and saline as the local convulsions alternated repeatedly with lipothymias. All this sequence of symptoms occurred during a menstrual period. As this came to a close the convulsions grew less frequent, and finally all this vagotonic and sympatheticotonic delirium subsided. The last drug given before the sudden turn for the better was 3 gm. of potassium bromid by the rectum. Ayres regards the whole syndrome as a "tempest in the vegetative nervous system brought on by the gastric ulcer."

Cronica Medico-Quirurgica, Havana

February, 1918, **44.** No. 2

56 Public Health in Cuba. F. M. Capote.—p. 61; A. Agramonte.—p. 66.
57 The Medical Press and Medical Education. J. Santos Fernandez.—p. 83; G. Aldereguia.—p. 94.
58 Hereditary Transmission of Syphilis. B. Saenz.—p. 87.

Medicina Ibera, Madrid

Jan. 10, 1918, **2,** No. 10

59 *Scleroderma with Nodules. M. F. Criado.—p. 29.
60 *Membranes and False Membranes in the Peritoneum. V. Escribano.—p. 33.
61 Malarial Eruptions. Sicilia.—p. 36.
62 *Vitamins in the Diet. G. Pittaluga.—p. 37. Conclusion.
63 Puberty. Blanc y Fortacin.—p. 45.
64 Diverticulum in the Bladder. P. Cifuentes.—p. 58.

59. **Scleroderma with Nodules.**—The young woman was of a healthy family and seemed healthy herself except for the scleroderma and lumps in all her fingers except the thumbs. These disturbances had developed in the last four years. No possible cause could be discovered but improvement followed tentative suprarenal treatment. In two of the fingers the nails have grown—for the first time since the nodules developed. These two fingers alone had been anesthetized for resection of a nodule, and epinephrin had been used with the local anesthetic. This suggests that local application of epinephrin should supplement the general suprarenal treatment.

60. **False Membranes in the Peritoneum.**—Escribano describes a few cases from his own experience in which false membranes had formed on a segment of the bowel. In one man of 28 this mesenteriform membrane had developed on the upper segment of the jejunum and ileum. It was entirely free of the greater omentum, colon, and abdominal walls but was continuous with the mesentery by the intermediation of the serous sheath of the intestine. He cut away the entire false membrane which had been immobilizing the intestine, working between two ligatures, and covering raw surfaces with peritoneum. Complete subsidence of all the previous disturbances gradually followed. The membrane had covered three meters of the bowel. The resulting kinking and other obstructions amply explain the tendency to gastric or duodenal ulcer in such cases, and confirm the possibility of a permanent cure when the bowel is released from the grasp of the false membrane. This "medical surgery" seems to be all that is necessary. The features of these false membranes suggest a congenital rather than an inflammatory origin. In two of the groups described there were comparatively recent membraniform adhesions, evidently result of old and cured pericholecystitis. Years of suffering were cured at one stroke by breaking up the adhesions. In another case there was no trace of a mesentery for the transverse and descending colon while the gastrocolic omentum was so large that part sagged an inch or two below the iliac crests, and the stomach sagged low down.

62. **Vitamins and Hygiene.**—Pittaluga's presentation of the present status of our knowledge in regard to vitamins is based largely on editorials and abstracts in The Journal. He concludes with the statement that it might be well to appoint an official like the ancient Roman praefectus annonae to equalize the markets at different points and ensure the proper distribution of foodstuffs on the basis of their vitamin content. Hygiene, he adds, is the art of applying scientific data to the conservation and perfecting of human life. When art has man for its object, individually or collectively, it is rightfully called political economy. The enlightened must work to save the people in spite of themselves.

Prensa Medica Argentina, Buenos Aires

Jan. 10, 1918, **4,** No. 22

65 *Syphilitic Meningitis. M. R. Castex and R. Pradere.—p. 291.
66 *Dwarf Tapeworm in Argentina. S. E. Parodi.—p. 294.
67 Normal Beef Serum in Treatment of Anthrax. III. J. Penna, J. B. Cuenca and R. Kraus.—p. 297. Continuation.

65. **Syphilitic Meningitis.**—A man of 64 was brought to the hospital unconscious, and the clinical diagnosis was syphilitic meningitis plus a gummatous affection of the right lung. This presumptive diagnosis was confirmed by the recovery under specific treatment. Syphilitic meningitis may develop in an acute form with stormy onset, or it may resemble tuberculous meningitis in its gradual development. The main difference between acute meningitis of syphilitic origin and others is the promptness and the intensity of the psychic disturbances. The cases of tuberculous meningitis in children and adults which have been published as cured by mercury and iodid treatment probably in reality had been syphilitic meningitis, with the syphilis unrecognized. Two cases are described in which the symptoms came on gradually. Headaches and forgetfulness so that the man was unable to find his way home from his work lasted for two or three weeks, and then vomiting followed, with stupor. The Wassermann test was negative but the entire absence of fever and the high pressure in the spinal fluid, the intense Kernig sign and cerebellar ataxia confirmed the diagnosis of syphilitic meningitis and complete recovery followed in less than ten days of mercurial treatment. In the other case the meningitis came on with high fever, delirium, and symptoms of nephritis. Under mercury and iodid both the meningitis and the nephritis subsided completely. Although there was no history of abortions, the ten children all presented stigmata of syphilis.

66. **Tapeworm in Argentina.**—Parodi found ova of the *Hymenolepis nana* in 8 per cent. of the children's stools examined at Buenos Aires and in 0.66 per cent. of adults' stools. He describes here twelve cases of this helminthiasis in children. As these dwarf tapeworms infest the lower intestine they cause comparatively little disturbance. In a few of the children there were gastro-intestinal symptoms and two presented nervous phenomena resembling epilepsy. One girl of 14 had these epileptiform attacks every week or two for four years. Twitching of the head or left arm was the first symptom, and then came loss of consciousness for a few minutes. Once the convulsion lasted for half an hour, the tongue was bitten and the child was unconscious for several hours. Tonics and sedatives had been ordered by various clinicians, but one noticed finally that the child's nose seemed to itch a great deal, and examination of the stools then revealed the ova and under thorough and repeated male fern or thymol treatment hundreds of helminths were passed and there have been no nervous symptoms since. In another case a boy of 13 apparently healthy otherwise, had fallen unconscious for three or four minutes, the eyeballs rolling up. These attacks were repeated four or five times a day and there were frequent headaches. After six months of this the stools were examined and the dwarf tapeworm ova and endameba cysts were found in large numbers.

Revista de Medicina y Cirugia Practicas, Madrid

Jan. 21, 1918, **118,** No. 1491

68 *Aphorisms of a Urologist. S. V. de Castro.—p. 65.

68. **Aphorisms of a Urologist.**—Among de Castro's aphorisms, which fill five pages, is one reiterating the importance of the ear-bladder reflex, especially with a tendency to prostate obstruction: The sound of water being poured from one vessel into another increases and may even start expulsive

contraction of the muscular fibers in the bladder. He says that deep forcible inspirations aid the *prostaticos* to void urine, as this aspirates the blood into the chest, which relieves engorged veins below and tends to reduce congestion in the prostate region. The action of the balsamics given for gonorrhea is chiefly displayed as they are eliminated through the diseased mucosa. It is important therefore to keep the diseased mucosa clean so that elimination can proceed unimpeded. This is particularly necessary with gonorrheal vaginitis. He declares that intra-urethral injections wash the germs into previously uninfected regions, so that they have done more harm to the human species than the gonococcus itself. Copaiba and the other balsamics induce diuresis by their action on the kidney, and they are liable to bring on lumbar pain, vesical tenesmus and albuminuria, which must not be misinterpreted. Persons with sluggish metabolism and elimination seem to be particularly predisposed to the chronic form of gonorrhea. Well treated gonorrhea never leaves urethral stenosis. The asepsis of the catheter may be complete but it takes up germs as soon as it touches the meatus. His final aphorism is to the effect that singing with all one's lungs promotes diuresis.

Revista Medica del Uruguay, Montevideo

January, 1918, **21**, No. 1

69 *Intra-ocular Sarcoma. J. De Salterain.—p. 1.
70 *Congenital Segmentary Edema. J. A. Bauza.—p. 6.
71 *Dissecting Perimastitis. F. Cortabarria.—p. 9.
72 Infantile Scorbutus. R. M. del Campo.—p. 15.
73 *Typhoid Superposed on Paroxysmal Hemoglobinuria. A. Ugon.—p. 20.

69. **Intra-Ocular Sarcoma in Children.**—De Salterain cites among others a report on thirty cases of sarcoma of the choroid compiled by Argañaraz of Buenos Aires in 1915, but none were in children. He has been unable to find records of more than thirteen or fourteen cases in children, but he has himself encountered two cases in infants. In both cases prompt enucleation was done, and the children have shown no sign of recurrence during the intervals of four and eight years since. One was a girl of 6 months, the other a boy of 22 months. The children seemed to be healthy otherwise. In the first case there was no inflammatory reaction, but the child cried and became restless when the sound eye was covered, confirming that vision was lost in the other.

70. **Segmentary Edema.**—Bauza noticed the day after the birth of a girl infant that both of the infant's feet showed extreme edema, but there was no trace of edema elsewhere. Under massage and application of heat it gradually subsided somewhat but was still pronounced, and harder, by the fifth month. Milroy has reported a family in which there were twenty-two cases in the course of six generations, but in Bauza's case no familial or hereditary factor was manifest.

71. **Dissecting Perimastitis.**—Cortabarria's two patients were parturients, apparently entirely healthy except for lymphangitis of the mamma. The breast was treated with tincture of iodin. Ulceration followed and a Bier vacuum glass was applied in each case with application of ice in one case and further iodin treatment in the other. The aspiration into the vacuum glass had evidently been too severe, and this traumatism in connection with the extravasation of serous fluid induced by it had favored the spread of the existing lymphangitis. It invaded the region around the mamma, causing chills, high fever and dissecting perimastitis. One woman was left with diffuse infiltration of the mamma after recovery. The other developed phlebitis in the left leg and an embolus in the left lung, with symptoms suggesting thrombosis in the external iliac vein. Streptococci were cultivated from the blood just before death. He regards the intensive application of the vacuum glass as the principal factor in these complications.

73. **Typhoid with Hemoglobinuria.**—The boy of 7 had been subject to essential paroxysmal hemoglobinuria for four months when he developed typhoid. There were no signs of inherited syphilis, but the tuberculin reaction was positive. Fever, depression and bronchopulmonary symptoms were the only signs of typhoid until agglutination became positive by the end of the fourth week. The case further teaches, it is emphasized, the necessity for vaccination against typhoid for the personnel of hospitals and for all the inmates when there are cases of typhoid in the building. This child evidently contracted the typhoid from a typhoid case in the hospital.

Semana Medica, Buenos Aires

Dec. 27, 1917, **24**, No. 52

74 *Hookworm in Argentina. C. P. Mayer and R. A. Borzone.—p. 725.
75 Improved Ureometer. A. M. del Pont.—p. 732.
76 *Syphilis in Argentina. J. A. Raices.—p. 735.
77 Smallpox in Northern Argentina. J. B. Valdes.—p. 739.
78 The Stretcher-Bearer Service. J. A. Lopez.—p. 742.
79 The Increasing Infantile Mortality. E. R. Coni.—p. 747.

74. **Hookworm in Argentina.**—Mayor and Borzone report the first case of autochthonous ankylostomiasis in a man who had been living constantly in Argentina for many years. The *Necator americanus* was found numerous in the stools.

76. **Syphilis in Argentina.**—Raices comments on the alarming spread of syphilis in Argentina. The number applying for treatment of syphilis at the clinic for skin diseases and syphilis has almost doubled in the last five years. All ages, both sexes and all classes of society show this constant increase, while the public authorities, he reiterates, are doing nothing to check its spread which grows more and more difficult every day that passes. During the last four years the source of the infection has been investigated in every case of syphilis in the clinic, and in 95 per cent. it was traced to the licensed brothels under municipal supervision with weekly medical inspections.

Siglo Medico, Madrid

Jan. 5, 1918, **65**, No. 3343

80 Endemic Goiter in Spain. J. Goyanes.—p. 2. To be continued.
81 Relation between Arteriosclerosis and Chronic Arthritis. G. Hurtado.—p. 4.
82 Vital Statistics. L. Lasbennes.—p. 6.
83 Traumatism in Infancy. H. Ibañez.—p. 8.
84 Practical Dietetics. S. Baglioni.—p. 9. Continuation.

Grèce Médicale, Athens

August-September, 1917, **19**, No. 15-18

85 *The Position on All Fours to Relieve Heart Distress. Cecikas.—p. 29.
86 *Oxaluria and the Diazo Reaction. A. Phocas.—p. 32.
87 Oxaluria Preceding Diabetes. A. Phocas.—p. 33.
88 Indicanuria with Deficient Diet. A. Phocas.—p. 33.

85. **Crawling on Hands and Feet to Relieve Heart Disease.**—Cecikas reports eight cases in which persons with distressing paroxysmal tachycardia or other heart symptoms obtained great relief by getting down on all fours. One man of 32, emaciated from bacillary dysentery, found this the only means of relieving paroxysmal tachycardia. After the dysentery had been cured by serotherapy, there were no further paroxysms. Other patients were corpulent and suffered from a tendency to angina pectoris or to edema of the lung. Getting down on all fours, and standing still or crawling to and fro like an animal in a cage, brought relief each time. One of the patients was very thin and nervous, with attacks of palpitation and distress, insomnia, etc. By getting up in bed and crawling around on all fours she obtained relief and slept afterward. A change to the country and hydrotherapy cured her. The change to the quadruped position changes the statics and the distribution of fluids in the body, and thus cannot fail to modify the heart action. The pressure in the chest is reduced which facilitates the reflex of blood, while the viscera change their relations to each other to some degree, and the heart changes its position notably, both perpendicularly, horizontally and twisting on its axis, and its relation to the abdominal viscera is altered. The influence of indigestion and tympanism on the functioning of the diseased heart is well known. He has seen arrhythmia subside completely in children kept fasting for a day, and he has witnessed prompt recuperation of the heart in typhoid that seemed on the point of complete heart failure, when a tube

was introduced high up in the bowel to permit evacuation of gases. He adds that it is possible that toxins generated in the bowel may slide down, in the all fours position, to some point where they may get modified or neutralized. This position may also modify the glands with an internal secretion. In conclusion he cites Hirtz' statement that a change to the quadruped position brings such relief in pericarditis with much effusion that this relief may be regarded as a pathognomonic sign of this disease.

86. **Oxaluria and the Diazo Reaction.**—Phocas relates that in twenty-one clinical patients there was oxaluria plus urobilinogenuria in all but three.

Acta Scholae Medicinalis Univ. Imp. Kioto

Jan. 31, 1918, **2**, No. 2, German Edition

89 *The Bacterial Demolition of d-Tyrosin and Stereochemical Behavior of the Products. M. Tsudji.—p. 115.
90 *Direct Implanting of Nerve in Muscle. T. Doi.—p. 125.
91 Actions of Cholin, especially on the Circulation. Y. Ozaki.—p. 143.
92 *Pathogenesis of Communicating Hydrocele. H. Tsuji.—p. 207.

89. **Action of Bacteria on Tyrosin.**—Tsudji subjected tyrosin to the action of proteus bacilli, and other specimens to the action of the subtilis. The products with the proteus were always of the dextro type; with the subtilis they were always of the levo type. He says that he knows of nothing analogous to this in pure chemistry or in biologic chemistry. The d-oxyacid product was always obtained with the proteus, the l-oxyacid, with the subtilis, regardless of the optic components of the tyrosin. He experimented both with d-tyrosin, l-tyrosin and dl-tyrosin.

90. **Implanting Nerve in Paralyzed Muscle.**—Doi's experiments on young rabbits gave encouraging results. He exposed the nerves at the back of the knee through a 3 cm. incision, resected as long a stretch of the tibial nerve as possible, and severed the external popliteal nerve in the peripheral portion. Then he implanted the central stump of this popliteal nerve in the neurectomized gastrocnemius muscle, and fastened it to the muscle with a few stitches. Seven such experiments and the ultimate microscopic findings are described in detail, as also five experiments in which the nerve was thus implanted in a long paralyzed muscle. In other experiments he studied the changes undergone by the neurectomized muscle. The results obtained encourage the hope that a long paralyzed muscle can be restored to functioning by implanting another motor nerve, provided the muscle is only in simple atrophy and does not show too extreme a degree of degeneration. No evidences of hyperneurotization were observed up to eighty-five days when another motor nerve was implanted in sound muscle. In the further growth of the regenerating nerve fibers, the presence of the old degenerated nerve tract seems to play a great rôle, as is illustrated in a colored plate.

92. **Communicating Hydrocele.**—Tsuji applies this term to hydrocele communicating with the peritoneal cavity, and describes thirteen cases in which he corrected conditions by a laparotomy. The fluid was derived mainly from the peritoneal cavity and signs of simple chronic peritonitis were found in nearly every case although it had been quite latent in several. The peritonitis had evidently been brought on by constipation, chronic indigestion and ascaridiasis. The patients were mostly boys from 5 to 18, but there were three men of 22, 37 and 42. In two of the cases the hydrocele had subsided for five months or seven years but then returned, but the cure was complete in every case when the internal opening of the vaginal process was permanently closed with a purse-string suture. No signs of tuberculous peritonitis were found in any case and only two of the patients gave a faint Pirquet tuberculin reaction.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Jan. 26, 1918, **1**, No. 4

93 *Acute Pregnancy Edema of Uterine Cervix. J. S. A. M. Knoop and J. A. van Dongen.—p. 207.
94 *The Pituitary Body. M. W. Woerdeman.—p. 215.
95 *Intratracheal Treatment of Asthma. D. J. De Levie.—p. 221.
96 Invertase in the Blood Serum. C. H. Boissevain.—p. 226.
97 Electric Accidents; Two Cases. F. J. H. Alberti.—p. 232.

93. **Acute Edema of Anterior Lip of Uterine Cervix.**—The edematous swelling protruded from the labia in the case described, but gradually subsided and delivery followed three days later. Knoop and van Dongen review the literature on the subject and discuss the probable factors involved. In 1912 Meyer compiled twenty-two cases of the kind.

94. **Anatomy of the Pituitary Body.**—Woerdeman analyzes the lobus bifurcatus of the pituitary body and its origin as studied on various vertebrates. It is very small in man, as he shows in his illustrations, but it is very important on account of its proximity to the chiasm and the floor of the third ventricle. Its location in the subarachnoidal space suggests that it has some special function. It cannot be removed with the rest of the gland without resecting the diaphragm of the sella turcica, and even then cannot be removed without danger of injury of nerve tissue as it extends toward the base of the brain. Another significant feature of this bifurcated lobe is that it may explain the cysts that develop back of the stem of the pituitary body.

95. **Intratracheal Treatment of Asthma.**—De Levie incriminates spasm of the bronchial muscles as the cause of asthma, and ascribes this to overexcitability of the innervation. The logical treatment is to reduce this overexcitability, especially as it has been found that anesthetizing the region for bronchoscopy seems to arrest and cure attacks of asthma. Ephraim, Pieniazek and Novotny have each reported the cure of asthma by systematic application of novocain plus epinephrin. No untoward by-effects were ever observed. De Levie has applied this method of treatment in fifteen cases and seven may be regarded as cured, no attacks having returned during about a year to date. Six were much improved but still have an occasional attack and return for further treatment. The attacks are rare, however, and much milder. No benefit was observed in one young woman with hysteric paralysis of the vocal cords, and in another case in which the asthma was of twelve years' standing and the expectoration from chronic bronchitis so profuse that probably the medication was mostly expelled without getting absorbed. The technic is simple; a flexible tube carries the spray directly into each bronchus in turn, thereby acting on the nerve terminals and thus arresting the cause of the spasm of the bronchial muscles. In his later series he used an atomizer with a tube bent twice at a right angle. The distal, downward bent portion is 10 cm. long. After cocainizing the larynx, the tube is introduced under the guidance of the mirror. It reaches down below the cleft of the vocal cords. Then the fluid can be sprayed in gently, taking as much time for it as you wish. In order to get as much spray into the air passages as possible, the atomizer bulb is squeezed synchronous with each inspiration. He used various sprays; besides the novocain-epinephrin mixture, he tried tannin, menthol or Ems salts. The application was made twice a week at first and then once a week or with longer intervals. In some cases the course lasted for two or three months. All were old inveterate cases, mostly with chronic bronchitis, in some with emphysema, so that 50 per cent. cured and all improved but two, seems a satisfactory result.

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98 Nature of Hysteria, Neuroses and Perverted Reactions. O. Gulstad.—p. 85.
99 *The Minimum Ration of Fat. S. Bang.—p. 105.

99. **Minimum Ration of Fat.**—Bang protests against generalizing the results of Hindhede's experiments on two healthy men who lived for eighteen months on a practically fat-free diet without physical harm. Assuming that the robust trained men actually subsisted without any fat for this length of time, it by no means follows that the general populace, the children, the tuberculous, could stand deprivation of fat without harm.